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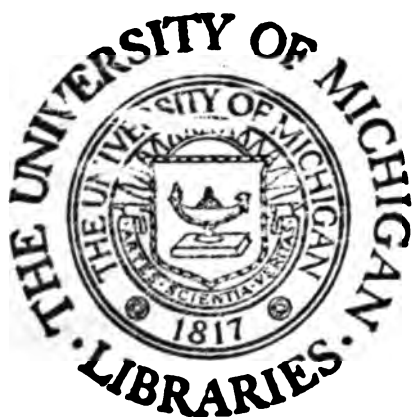
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ANNUAL REPORTS

119683

OF THE

WAR DEPARTMENT

FOR THE

FISCAL YEAR ENDED JUNE 30, 1898.

REPORT OF THE
SECRETARY OF WAR.
MISCELLANEOUS REPORTS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1898.

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REPORT
OF
THE SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, D. C., November 29, 1898.

To the PRESIDENT :

I have the honor to submit the annual report of this Department:

In my report for last year there were published the report of the Major-General Commanding the Army, and synopses of the reports of chiefs of bureaus, with recommendations for such legislation as would tend to better administration. The full reports are also submitted herewith.

The work for the year was thus reviewed, and as that plan proved satisfactory it is followed this year.

The reports of the Major-General Commanding the Army, of Major-General Merritt, commanding the troops in the Philippines, and of Major-General Shafter, commanding the troops in Cuba, and are published in full in this report, together with correspondence, telegraphic and otherwise, relating to the war. Each tells his story in his own way. The synopses of chiefs of bureaus follow, with such comments and recommendations as are deemed appropriate and necessary; also an extract from the report made by Major-General Breckinridge, Inspector-General, who was sent by the Major-General Commanding the Army to observe the operations of the Army at Santiago and to report thereon.

THE ARMY.

War with the Kingdom of Spain was declared April 21, 1898. By proclamation of April 23 the President called for 125,000 volunteers, and on May 25 he called for an additional force of 75,000. Congress also authorized an increase of the Regular Army to 61,000 men,

and in addition provided for 16 regiments of volunteer infantry (immunes), cavalry, and engineers.

The appropriation of \$50,000,000 for the national defense, made by Congress on the 9th day of March last without a dissenting vote, roused the enthusiasm of the people, fusing all shades of opinion into one patriotic thought.

At that time the defenseless condition of our harbors and ocean cities and towns caused great apprehension among the people along the coast. The hastening of work on fortifications and the placing of mines in our harbors was therefore of the first importance; and, accordingly, every energy was bent from that time forward by the Chief of Engineers and the Chief of Ordnance to that end. In addition to those already in place, 185 guns, including mortars, were mounted; 102 seacoast carriages provided; 13 temporary batteries constructed at important points, and over 1,500 submarine mines planted in 28 different harbors.

On April 15 orders were issued concentrating the Regular Army in camps in the Southern States, where the Volunteers followed, nearly 125,000 having been mustered into service by May 31.

Soon after the declaration of war, a movement was contemplated looking to the investment of Havana, and orders to that effect were issued, and also for a reconnaissance in force along the south coast of Cuba; but the movement of the enemy's fleet changed these plans and culminated in the campaign of Santiago.

SANTIAGO CAMPAIGN.

On June 14 Major-General Shafter, with his command, sailed from Tampa for Santiago. June 22 his first troops landed at Daiquiri. Two days later the engagement of La Guasima occurred; and on July 1, 2, and 3 the battles of El Caney and San Juan Hill, in front of Santiago, were fought. After the cessation of firing about noon on the 3d, the surrender of the Spanish forces was demanded by General Shafter. This being refused, the commanding general of the Spanish forces was notified that the bombardment of Santiago would begin at noon of the 5th, thus giving two days to enable the women and children to leave the city.

On July 3 the Spanish fleet fled from the harbor and was destroyed by our navy. The surrender being again demanded on July 4, negotiations were renewed. No engagement, however, took place until July 10, when at 4 p. m. the Spaniards opened fire, which was soon silenced.

On the morning of the next day the bombardment was renewed, and continued until 2 p. m., when upon another demand for the surrender of the enemy the firing ceased and was not again renewed.

Major-General Miles arrived off Santiago July 11, and that evening communicated with General Shafter by telephone, and on the 12th arrived at General Shafter's headquarters. July 13 and 14 he, with General Shafter, met the Spanish commander under flag of truce between the lines, to discuss the surrender of the Spanish forces. On the afternoon of July 14 General Miles left General Shafter's headquarters and soon thereafter went on board ship, preparatory to sailing for Porto Rico. July 17 the Spanish Commander, General Toral, surrendered the city, including the troops in Santiago and the surrendered district (over 23,000 men) upon our terms, and at noon of that date the American flag was, by order of General Shafter, hoisted over the governor's palace.

Casualties: Twenty-three officers and 237 enlisted men killed; 99 officers and 1,332 enlisted men wounded. Some criticism having been made that there was a lack of surgeons present, it should be stated that there were 74 surgeons in attendance at time of battle, and 70 joined immediately afterwards, and that of 1,431 wounded but 13 died from wounds.

The shipment of the Spanish prisoners to Spain, under the agreement, commenced August 9 and ended September 17. Total number of people shipped was 22,864.

August 4 General Shafter received orders to embark his command for Montauk Point, N. Y. The movement continued until August 25, when he sailed with the last of his troops, except a few left in hospital sick, turning over the command of the department to Major-General Lawton.

PHILIPPINES CAMPAIGN.

The movement of Major-General Merritt's command to the Philippines commenced May 25, the first expedition arriving off Manila June 30. Other troops arrived July 17, 25, 31, August 21, 24, and 31.

General Merritt arrived off Manila July 25, and immediately visited the troops in camp which had preceded him under command of Brigadier-General Anderson. Preparations were at once commenced to attack the enemy holding the city.

On July 31 the Spaniards made a sharp attack on our forces on the Calla Real. August 7 the Spanish commander was notified to remove

all noncombatants from Manila within forty-eight hours. On same date he replied that the Spanish were without places of refuge for the wounded and the sick women and children then lodged within the walls.

August 9 a joint demand was made for the surrender of the city, signed by General Merritt and Admiral Dewey. The Captain-General offered to consult his Government, if time were allowed in which to communicate by way of Hongkong. This was refused, on account of the time required, the urgent need of relieving our troops from the trenches, and the great exposure to unhealthy conditions in a bivouac during the rainy season.

August 12 orders were issued for the advance, and on the 13th the combined attack by the Army and Navy occurred, resulting in the capture of Manila the same day. Immediately after the surrender the Spanish colors on the sea front were hauled down and the American flag raised. The prisoners captured at Manila were nearly 13,000; also 22,000 stand of arms.

The cablegram sent August 12 to General Merritt, containing the text of the President's proclamation directing a cessation of hostilities, was not received by him until August 16.

Casualties: 17 enlisted men killed, 10 officers and 96 enlisted men wounded.

PORTO RICO CAMPAIGN.

The Major-General Commanding the Army sailed from Charleston, S. C., July 9, arriving off Santiago July 11. The same day he went on shore, communicated with General Shafter, and arrived at the latter's headquarters on the following day, July 12. On July 14 General Miles returned to Siboney, moved all the troops then on transports to Guantanamo, about 40 miles east of Santiago, where he organized his expedition, and sailed for Porto Rico July 21, landing at Guanica July 25. Other troops under command of Major-General Brooke arrived at Guanica July 27; at Guayama, July 31; at Ponce, August 2; at Arroyo, August 3; and at Ponce, August 16.

July 25, after a short skirmish, the Spanish troops were driven from Guanica, and the American flag was raised on the island. July 26, in an engagement at Yauco, the enemy was defeated. July 27 the navy entered the harbor of Ponce, and the next day the army took possession of the city, the troops being pushed well forward on the San Juan road, whence the enemy had withdrawn.

August 5 the troops under General Brooke had an engagement with the enemy at Guayama, which was finally occupied by our forces. August 8 there was an action near Guayama, the Spanish being driven in the direction of Cayey. August 9 troops advanced from Yauco, occupying, successively, Sabana Grande, San German, Lares, and Arecibo, entering Mayaguez, after an engagement August 10 near Hormigueros. At Coamo an engagement took place August 9, the enemy being defeated and 167 prisoners taken. At Asomanto, August 12, the enemy's position was shelled, and on August 13, the command being ready to move forward, orders were received suspending hostilities.

Prior to the signing of the protocol on the 12th of August, the forces under General Miles in Porto Rico had participated in six engagements, and had occupied a large portion of the island.

The loss of the enemy was reported to be much greater than our own, which was 3 enlisted men killed and 4 officers and 36 enlisted men wounded.

August 30 General Miles sailed for the United States, turning over the command of the troops in Porto Rico to Major-General Brooke. The final evacuation of Porto Rico by the Spanish troops occurred October 18, and on that date the American flag was hoisted over the public buildings and forts at San Juan.

HAWAIIAN ISLANDS.

July 7 Congress ratified the cession of the Hawaiian Islands to the United States. Troops sailed for Honolulu July 29. August 17 our flag was raised over the islands.

MUSTER OUT OF VOLUNTEERS.

August 18 an order was issued to muster out 100,000 volunteers, which is being carried out.

Thus an army of about 250,000 volunteers and recruits for the regulars was called into existence from civil life, which, with the Regular Army, made a total force of 274,717 men. It was organized, armed, and equipped (no supplies being on hand other than those for the regulars, save Springfield muskets), and 50,000 men of this force were transported by land and sea to battlefields in the tropics 12,000 miles apart, where they won their victories without a single defeat, and all within the period of one hundred and thirteen days from the declaration of war to the signing of the protocol.

This great achievement can be credited to no individual; it belongs to the nation. It was accomplished through the intelligence and patriotism of all who served, from the commander in chief to the private in the ranks. It also speaks volumes for the prompt, patriotic, and intelligent assistance of the people who furnished in so short a period the supplies necessary to prepare this great army for the field. To the heroic men who served in distant lands the country will ever offer a true meed of praise; but the mighty army in camp, ready and eager to take the field, should also be given equal credit. It was their presence, ready at an hour's notice for any emergency, that overawed the enemy and proved to him that further resistance would be in vain.

DEATHS IN THE ARMY.

The deaths in the Army from May 1 to October 1, including killed, died of wounds and of disease, were 2,910, the smallest death rate recorded of any army in history, a most gratifying fact when it is considered that over 50,000 of our troops, born and reared in the temperate zone, were campaigning in tropical climates, subject to rain and heat almost unprecedented.

FURLONGHS.

The volunteers mustered out were granted one and two months' furlough before discharge and final payment. In the summer months this was an indulgence. To do so in winter months would, in many of the States, be a hardship. In order that all may be dealt with alike, it is recommended that the officers and men of the volunteer troops yet to be mustered out be given two months' pay at the time of discharge. This would admit of their prompt discharge in their present camps in the South.

INCREASE OF THE PERMANENT ESTABLISHMENT.

In view of the needs of a military force in the islands occupied by the United States it is earnestly recommended that the Regular Army be permanently increased to 100,000 men and the requisite officers; that a portion of this Army be recruited from the inhabitants of those islands, to be mustered into the service of the United States, and commanded by officers of our Army, discretion, however, to be given the President to make appointments of officers from the force so recruited.

These men are acclimated, understand the language and habits of their countrymen, and their enlistment will not only give them employment but also have a tendency to enable the Government to get into closer touch with their people than it would otherwise be able to do. This would also relieve our own people from serving in those climates to a large extent, and would, moreover, enable the volunteers to be mustered out of the service and return to the avocations of civil life.

The distinction between the regular and the volunteer is very sharply drawn. The regular enters the service because he prefers the life of a soldier. Not so the volunteer. He enlists for an active campaign, when that is over and the enemy has laid down its arms, at once desires to return to civil life.

CONSTABULARY FORCE.

In the cities of Cuba, Porto Rico, and the Philippines there should also be employed and sworn into the service of the United States a constabulary force for police duty—men who have had experience and who can speak the languages of those islands, thus relieving our soldiers from that work.

SUPPLIES FOR THE CUBANS.

Under an act entitled "An act to provide assistance to the inhabitants of Cuba, and arms, munitions, and military stores to the people of the Island of Cuba, and for other purposes," approved May 18, 1898, large quantities of subsistence stores, ordnance and ordnance stores, medicines and medical supplies, and engineer property, as contemplated by the above act, were sent to the Island of Cuba under the direction of the Major-General Commanding the Army.

A full and detailed report is now in course of preparation by the Assistant Secretary of War, and will be made the subject of a future communication to Congress.

BELIEF OF THE DESTITUTE.

To supply food for the destitute, especially in Cuba, is a question that must tax this Government greatly, for a time at least. It is a question of humanity to which we can not turn a deaf ear. Employment is essential to contentment; idleness breeds indolence. The effort should be made to aid those people by giving them work, so

they may feel that they are earning their own bread instead of living upon charity.

Would it not be wise economy for the Government of the United States to construct a substantial railroad, practically the whole length of the Island of Cuba, with branch roads to the leading cities on the coast? Such a road would, of course, cost a large sum, perhaps \$20,000,000; but it would give employment to the people of Cuba, teach them habits of industry, be an inducement for them to cultivate their farms, and thus furnish supplies for the laborers and for market when the road is constructed. This, in my judgment, is absolutely essential to the pacification and development of that great island. It will bring its minerals, lumber, and agricultural products to market and open up communication with all parts of the island with the least possible delay. The road would be a good property, and when it had served its purpose for the Government could be sold for its cost. If such an improvement is not made, the Government will no doubt expend fully that amount in charity.

Even if this road be built, there is immediate necessity for a large appropriation to relieve the destitute. Many of the Cubans have no means of support, no homes, little clothing, no animals or farming tools, and no seed for planting.

SANITATION.

The question of sanitation of the cities of Cuba and Porto Rico should have immediate and careful attention, not only for the benefit of the people of the islands, but also to stamp out the scourge of yellow fever which is yearly brought to this country. A sufficient part of the customs duties and other taxes collected in those islands should be expended for this work.

ALASKA.

Military exploring parties have been in the field during the past season and their reports will be transmitted to Congress as soon as received. That country is a vast one and the developments that are constantly being made show that it has great possibilities in store for it. Its mining industries will in the near future call to that Territory a large number of people, and those who go there will need some power to control and to protect them. The Department

has endeavored to meet this need by stationing troops at St. Michaels and also at several points along the Yukon.

Troops were sent there in September, 1897. Some of them were relieved this year and others sent in their places with ample supplies for them until the opening of navigation in 1899, and there has also been shipped quite a large amount of extra supplies for emergencies. The force now stationed in Alaska consists of two companies and a detachment of infantry and one battery of artillery. A sufficient force should be stationed there to guard our interests and to encourage investors to go to that country, and thus aid in its development.

On December 18, 1897, \$200,000 were appropriated by Congress and placed in the hands of the Secretary of War for the relief of people in the Yukon River country or other mining regions of Alaska. Thousands of people and nearly, if not all, boards of trade on the Pacific coast were very strong in their demands for immediate relief to be sent there, as it was believed many thousands were starving.

Reindeer were purchased abroad and shipped to Dyea; supplies were sent there, and arrangements made by various modes of conveyance for getting these supplies to Dawson City and the Yukon country. As reports subsequently received showed that the suffering was not of such a character as had been represented, the expedition was abandoned, most of the reindeer were turned over to the Interior Department, and the supplies sold as provided by the act making the appropriation. The amount expended was \$142,665.73.

A portion of the balance of the appropriation will probably be needed to meet outstanding indebtedness and claims not yet adjusted.

A report in detail will be submitted to Congress as required by the act making the appropriation.

STATUES.

GENERAL GRANT.

In my last annual report the recommendation of my predecessor for the erection of a statue to General Grant was renewed. This can not be too strongly urged, and it is therefore again recommended that provision be made for a suitable monument, which shall be a fitting tribute to the memory of that distinguished soldier.

GENERAL SHERMAN.

A temporary wooden building as a studio for the sculptor has been erected in the northeast corner of the public grounds south of the Treasury Department near the site selected for the statue. The foundation for the pedestal and statue is now being constructed.

GENERAL SHERIDAN.

The statue is to be erected in the plat of ground at the intersection of Pennsylvania avenue and E street NW. The contract for the statue has been let to Mr. J. Q. A. Ward, of New York City, by the committee of the Society of the Army of the Cumberland.

GENERAL LOGAN.

The polished granite base for the pedestal of the statue was erected in September, 1897, in Iowa Circle, upon the foundation constructed, and the bronze pedestal has been received and placed in position upon the base, in readiness to receive the statue when completed. The contract required the statue to be completed in its entirety by December, 1898, but owing to certain changes in the pedestal and the enlargement of the historical figures thereon it was found impossible to complete the statue within the time specified, and upon the recommendation of the Chief of Engineers an extension of one year has been granted the contractor.

CLERICAL FORCE.

The clerical force of the Department was reduced 28 per cent in 1894. This reduction was made at the time the business of the country was very much prostrated. As soon as business revived the force was found inadequate, and when the war commenced it was sadly lacking. An increase was immediately needed, and funds for the purpose were allotted from the \$50,000,000 appropriated for the national defense, supplemented by deficiency appropriations.

CHIEF CLERK.

The chief clerk has served for thirty-four years in the Department and in his present capacity for sixteen years, upon a salary not at all commensurate with his ability and far below what he has fairly earned. I earnestly recommend again that he be commissioned a lieutenant-colonel in the Army, as provided in H. R. 10608, Fifty-fifth.

Congress, second session, which, while it will not increase his pay very materially, will insure to him a comfortable living when, several years hence, he shall have passed the age at which army officers are retired. He has worthily earned this recognition and should receive it for his services in this Department, where in addition to his other duties he has often acted for the Secretary of War, under the act of March 4, 1874 (18 Stat., 19), and for his services in the Army, for which he received a Congressional medal of honor.

SECOND ASSISTANT SECRETARY OF WAR.

Legislation to authorize the appointment of a Second Assistant Secretary of War is again urged.

RECOMMENDATIONS RENEWED.

In addition to those renewed in the body of the report, the following recommendations in the last annual report are again made:

That the law which authorizes the detail of officers to colleges *having a capacity to educate* 150 pupils at one time be amended to authorize the detail at such colleges as have not less than 150 pupils *actually present* for instruction.

That an appropriation be made for the construction of the ship canal to connect Lakes Union and Washington with Puget Sound.

That an annual appropriation of \$150 be made for the purpose of cleaning and preserving the public monuments in the District of Columbia under the control of this Department.

COMMENDATION.

I can not in words express my appreciation for their services, nor can the country overestimate the work of the heads of the several bureaus since war was declared. They knew no hours except all hours, nor days except every day in the week. The Assistant Secretary of War, at his post, day and night, has shared the burden in a very able and conscientious manner; and the clerks of the Department have been untiring and efficient in their efforts to carry their full share of the work. All have been ceaseless in their toil, able and patriotic in their labors, and for it they should receive the grateful thanks of the nation.

EXPENDITURES, APPROPRIATIONS, AND ESTIMATES.

The ordinary expenditures for the fiscal year ended June 30, 1898, the ordinary appropriations for the present fiscal year, and the estimates of amounts required for the fiscal year ending June 30, 1900, are as follows:

General object.	Expenditures from ordinary appropriations for the fiscal year ended June 30, 1898.	Ordinary appropriations for the fiscal year ending June 30, 1899.	Estimates of all amounts required for the fiscal year ending June 30, 1900.
Salaries and contingent expenses	\$1, 449, 035. 40	\$1, 438, 626. 00	\$2, 193, 656. 00
Pay, etc., of the Army	14, 488, 336. 28	14, 106, 665. 20	55, 430, 909. 22
Subsistence of the Army	1, 574, 276. 80	1, 550, 000. 00	17, 682, 437. 50
Regular supplies, Quartermaster's Department	2, 003, 889. 37	1, 800, 000. 00	14, 000, 000. 00
Incidental expenses, Quartermaster's Department	621, 755. 99	600, 000. 00	3, 000, 000. 00
Barracks and quarters and hospital construction	858, 979. 34	847, 000. 00	2, 670, 000. 00
Shooting ranges and contingent expenses of the Army	35, 104. 30	33, 390. 00	469, 390. 00
Cavalry and artillery horses	129, 775. 60	130, 000. 00	845, 000. 00
Army transportation	2, 711, 984. 78	2, 300, 000. 00	29, 613, 675. 00
Clothing, etc	1, 277, 228. 82	975, 000. 00	14, 744, 431. 00
Medical Department	144, 791. 66	130, 000. 00	2, 115, 200. 00
Ordnance Department	1, 708, 915. 54	1, 150, 000. 00	2, 940, 100. 00
Fortifications and sea-coast defenses	8, 713, 880. 92	9, 377, 494. 00	12, 151, 898. 00
Arsenals, etc	263, 082. 67	324, 225. 00	552, 547. 00
Military Academy	562, 346. 24	458, 689. 23	681, 866. 99
Rivers and harbors	21, 096, 053. 45	14, 854, 459. 56	28, 523, 778. 00
Parks, cemeteries, military posts, etc	806, 811. 24	1, 195, 134. 75	1, 467, 744. 00
National Soldiers' Homes	2, 999, 582. 86	3, 666, 021. 00	3, 974, 544. 00
Artificial limbs, appliances, etc	184, 844. 81	127, 575. 00	555, 275. 00
Buildings and grounds in and around Washington	113, 863. 78	127, 076. 00	127, 126. 00
Miscellaneous items	790, 745. 06	460, 680. 00	410, 600. 00
Total	62, 534, 784. 61	55, 652, 035. 74	195, 250, 377. 71

Expenditures from permanent annual appropriations and appropriations for war claims are not included in the above statement, but are shown in the appendix to this report.

The expenditures prior to July 1, 1898, the appropriations for the six months ending December 31, 1898, and the estimates for the six months ending June 30, 1899, covering the extraordinary appropriations made necessary by the war with Spain, are as follows:

General object.	Expenditures from extraordinary war appropriations prior to July 1, 1898.	Extraordinary war appropriations made available until Jan. 1, 1899.	Estimates of extraordinary appropriations required for the six months ending June 30, 1899.
Salaries and contingent expenses	\$25,000.00	\$312,000.00	\$320,000.00
Pay, etc., of the Army.....	6,225,000.00	50,380,199.39	18,823,475.94
Subsistence of the Army.....	4,348,164.56	23,100,755.78	11,876,025.00
Regular supplies Quartermaster's Department.....	600,743.49	13,500,000.00	5,646,200.00
Incidental expenses, Quartermaster's Department....	81,915.33	6,000,000.00	1,350,000.00
Barracks and quarters	30,500.00	2,750,000.00	.....
Contingent expenses of the Army	120,000.00	422,000.00	200,000.00
Cavalry and artillery horses.....	1,157,499.14	5,500,000.00	292,500.00
Army transportation.....	4,932,431.49	59,000,000.00	12,294,225.00
Clothing, etc	4,208,513.87	36,000,000.00	6,401,614.00
Medical department.....	100,000.00	604,000.00	2,300,000.00
Ordnance department	112,642.24	14,261,225.00	673,500.00
Fortifications and sea coast defenses.....	79,500.00	8,714,898.00	.....
Miscellaneous items.....	542,834.00	1,277,034.00	.....
Total.....	22,564,744.12	231,828,112.17	60,177,539.84

\$2,250,000 of the appropriation for barracks and quarters was made available by Congress until June 30, 1899.

There has been allotted to the War Department from the \$50,000,000 national defense fund the sum of \$18,794,627.68 for the purposes indicated in the following tabulated statement:

Condition of the special emergency appropriation for national defense (war) under the War Department.

Allotments.	Amounts allotted to Nov. 23, 1898.	Balances available Nov. 23, 1898.
Office of Secretary of War.....	\$150,000.00	\$84,534.00
Ordnance Department	9,081,498.86	4,437,077.71
Engineer Department	5,585,000.00	376,375.68
Quartermaster's Department.....	1,989,230.82	311.07
Subsistence Department.....	.....	.....
Medical Department.....	1,320,000.00	536,306.38
Pay Department.....	155,000.00	23,121.44
Signal Service.....	238,900.00	10.00
Light-House Board	75,000.00	5,134.00
Total	18,794,627.68	5,462,870.28

The summary of all expenditures for the fiscal year 1898, the appropriations for 1899, and the estimates for the fiscal year 1900, together with the supplemental estimates for the second six months of the present fiscal year, is as follows:

General object.	Expenditures for the fiscal year ended June 30, 1898.	Appropriations for the fiscal year ending June 30, 1899 (including Spanish war appropriations).	Estimates for the second half of the fiscal year 1899, and the fiscal year ending June 30, 1900.
Salaries, contingent expenses, etc	\$1,474,035.40	\$1,750,626.00	\$2,512,656.0
Military establishment (support of the Army and Military Academy)	55,476,355.52	254,926,123.28	204,976,971.3
Public works (including river and harbor improvements)	31,013,597.10	34,392,890.31	42,352,991.2
Miscellaneous	4,169,653.01	4,653,156.00	5,084,299.0
Grand total	92,133,641.03	295,722,795.59	255,427,917.5

EXPEDITIONARY FORCE TO CUBA.

The appropriation for the expeditionary force to Cuba was expended under the direction of the Major-General Commanding the Army. His report on the subject follows:

HEADQUARTERS OF THE ARMY, *Washington, D. C., November 25, 1898.*

SIR: In compliance with your directions, received through the Assistant Secretary of War, I have the honor to submit, herewith, a statement relative to the appropriation for the "Expeditionary force to Cuba."

This appropriation was made in two acts; the first, that approved May 4, 1898, appropriated \$150,034, "to be available until expended." The second, that approved June 8, 1898, appropriated \$350,000, to be "available for payment of liabilities which may be incurred to and including December 31, 1898." Both were "to be expended under the direction of the Major-General Commanding the Army."

The expenditures from this appropriation were made in preparing for and in the execution of the operations of the army in Cuba and Porto Rico.

On October 31 there remained on hand \$344,000 of the total appropriation of \$500,034. About \$60,000 (estimated) of this amount will be required to make the final settlement of outstanding indebtedness. The balance remaining will then be returned to the Treasury.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

Hon. RUSSELL A. ALGER

Secretary of War, Washington, D. C.

REPORT OF THE MAJOR-GENERAL COMMANDING THE ARMY.

HEADQUARTERS OF THE ARMY, *Washington, D. C., November 5, 1898.*

SIR: I have the honor to submit herewith the reports of Maj. Gen. Wesley Merritt, commanding Philippine expedition; Maj. Gen. John R. Brooke (operations in Porto Rico); Maj. Gen. William R. Shafter, U. S. V. (operations at Santiago de Cuba); Maj.

Gen. H. C. Merriam, U. S. V., commanding Departments of California and the Columbia; Brig. Gen. A. C. M. Pennington, U. S. V., commanding Department of the Gulf; Brig. Gen. J. M. Bacon, U. S. V., commanding Departments of Dakota and the Lakes; Brig. Gen. E. V. Sumner, U. S. V., commanding Departments of the Colorado and the Missouri; Brig. Gen. G. L. Gillepie, U. S. V., commanding Department of the East; also reports of the Adjutant-General, United States Army; the Inspector-General, United States Army; the commandant of the Artillery School, Fort Monroe, Va.; the commandant of the United States Infantry and Cavalry School, Fort Leavenworth, Kans., and the commandant of the Cavalry and Light Artillery School, Fort Riley, Kans.

The following reports of corps commanders Maj. Gen. John J. Coppinger, commanding Fourth Army Corps; Maj. Gen. Fitzhugh Lee, commanding Seventh Army Corps; and Brig. Gen. R. T. Frank, commanding Third Army Corps (the only ones received up to the present date) are also submitted.

The reports of operations of the following general officers who served in Porto Rico are also submitted: Maj. Gen. J. H. Wilson, U. S. V.; Brig. Gen. G. V. Henry, U. S. V.; Brig. Gen. Theodore Schwan, U. S. V., and Brig. Gen. G. A. Garretson, U. S. V.

The military operations during the year have been extraordinary, unusual, and extensive.

Early in the fiscal year troops were engaged in transporting supplies to citizens in Alaska, and since then in exploring expeditions through that extensive Territory. These expeditions have been under the direction of Lieut. Col. G. M. Randall, Eighth Infantry (now brigadier-general, United States Volunteers); Capt. P. H. Ray, Eighth Infantry (now colonel Third United States Volunteer Infantry); Capt. W. R. Abercrombie, Second Infantry; Capt. E. F. Glenn, Twenty-fifth Infantry, and Capt. W. P. Richardson, Eighth Infantry, and are still under the direction of Captains Abercrombie and Richardson.

Information recently received from one of the most intelligent frontiersmen and explorers in our service, Mr. Luther S. Kelly, who has been with Captain Glenn's command, indicates that they have successfully explored the country and discovered a route from Portago Bay to the Kaik River, which, connecting with Lieutenant Castner's trail up the Matanuska River, insures a practicable route entirely through our own territory to the Tanana River. A good pack trail or wagon road can be built from Portago Bay to the Kaik, and would be of great service to the enterprising and venturesome prospectors and miners who occupy that region.

THE WAR WITH SPAIN.

At the close of the great civil war the Government had a million veterans in arms, well equipped for war for that time. The great amount of war material then in the possession of the Government was sold or gradually used up by issue either to the militia of the States or to the regular forces that have been engaged in military operations on the frontier for the last thirty years. The supplies and materials that were not sold, but stored, were gradually reduced to the minimum, and the war with Spain found this country with a very small army—25,000 men—with war material sufficient only to equip that force and furnish it with a small amount of ammunition; but the tentage, transportation, and camp equipage was insufficient for any

important military operations; in fact, quite an amount of valuable transportation, including ambulances, had been disposed of within the last few years.

Prior to the passage of the joint resolution of Congress approved April 20, 1898, demanding that the Government of Spain relinquish its authority and government in the Island of Cuba, etc., Congress had appropriated \$50,000,000 for the national defense, and in the interim between this time and actual hostilities efforts were made to have furnished material for military operations on a more extensive scale than had been done in former years. This action of Congress was very important, as that time was most opportune and favorable for securing such munitions of war as were absolutely essential to the proper equipping of an army and to the securing of articles not in demand or available in this country at that time, but which are used in modern warfare; and the purchase of smokeless powder, rapid-fire and machine guns, modern rifles, etc., was urged at that time.

Several bills were pending in Congress during the winter of 1897-98 providing for the increase of the Regular Army, which finally resulted in the act approved April 26, 1898, authorizing an increase in the enlisted strength of the Army to 62,597 men. Congress subsequently authorized the enlistment of 10,000 men "possessing immunity from diseases incident to tropical climates."

On April 9 I recommended the equipment of 50,000 volunteers, and also on April 15 recommended that an additional auxiliary force of 40,000 men be provided for the protection of the coasts and as a reserve. This, with the increase of the Regular Army and the 10,000 "immunes," would have given us an effective force of 162,597, which, with an auxiliary force of 50,000 natives, I considered sufficient, and deemed it of the first importance to well equip such force rather than to partly equip a much larger number.

The following are copies of the two letters above referred to:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 9, 1898.

SIR: Under the Constitution every able-bodied citizen between the ages of 18 and 45 is amenable to service in the militia of the United States, and liable to be called into service by the President of the United States in time of war, numbering approximately twelve millions of men capable of bearing arms.

Under the provisions of the bill now pending in Congress it is expected that authority will be granted to recruit the infantry companies to 100 men each, and I presume the same rule will be applied to the cavalry and artillery. I therefore recommend that in case of war the batteries of heavy artillery be recruited to their full strength, namely, 100 men to each battery, in order to man the guns for the defense of the coast.

I also recommend that at least 22 regiments of infantry, 5 regiments of cavalry, and the light artillery be mobilized, and placed in one large camp where they can be carefully and thoroughly inspected, fully equipped, drilled, disciplined, and instructed in brigades and divisions, and prepared for war service. This will give approximately a force of 30,000 men.

I further recommend that the President call for a volunteer force from the different States and Territories of at least 50,000 men in addition to the above force, to constitute one army for any offensive movements against the Spanish army in Cuba, estimated at 150,000 men, of which number 80,000 are reported as effective for military service. The entire force should be fully equipped with mountain, field, and siege artillery, and all the appliances and equipments required for actual war service.

In addition to this force, the State troops along the Atlantic, Gulf, and Pacific coasts will be available for any emergency that might arise or threatened attacks upon the towns, villages, or cities that are exposed, or for concentration of the large force that may be required in the future.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 16, 1898.

SIR: Referring to my letter of April 9, I have the honor to submit the following: That in my judgment the available force of the Regular Army should be mobilized in the best and most available healthful position in the Department of the Gulf. I suggest Chickamunga Park, on account of its altitude and advantages for preparing a command for the serious requirements of actual warfare.

The history of the expedition to the Crimea and to Egypt indicate the necessity of complete and perfect equipment of each military organization, and the Army should be thoroughly and effectively organized in every department—infantry, artillery, cavalry, Engineer Corps, Signal Corps, construction train for building wharves, piers, etc., and repairing railway tracks and bridges, corduroying roads, etc., pontoon trains and appliances for depot and reserve trains—in order that upon landing on foreign soil every company, battery, regiment, brigade, and division shall be in perfect condition, fully supplied and equipped to render effective service. Hence the regiments of infantry, cavalry, and light batteries of artillery should be fully supplied with tentage, camp equipage, arms, ammunition, intrenching tools, and transportation, with medical supplies, and rations and food for men and animals for at least six months. The command should also be supplied with field artillery, siege guns, howitzers, and mortars for offensive work against any fieldworks or fortifications of the enemy, or for the protection of camps and depots that might be established.

The amount of ammunition per gun should be 500 rounds.

The amount of small-arms ammunition should be 1,000 rounds per man.

The regulation amount of tentage and transportation: Two wagons per company of infantry; 3 wagons per troop and battery of cavalry and artillery; 12 pack mules per company of infantry; 14 pack mules per troop and battery of cavalry and artillery.

Arms and ammunition and fatigue uniforms should be furnished for 50,000 natives, that should be organized into an auxiliary force.

For the support of the batteries manning the coast defenses along the Atlantic and Gulf coasts, and for the purpose of repelling any landing force or threatened danger to the port cities and towns, there should be at least a force of 40,000 men suitably equipped for that purpose.

The equipment of the 50,000 volunteers, in addition to the regular force, should be in my judgment on the same basis and the same allowances.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

At the commencement of the war the problem was largely a naval one, and until the question of superiority between our Navy and the Spanish navy, or such naval forces as might be furnished by any other European power or combination of powers supporting the Spanish Government, was determined, military operations had to be determined by the success or failure of our naval forces. I was fully convinced that should our Navy prove superior the position of the Spanish army in Cuba would be rendered untenable with a minimum loss of life and treasure to the United States. There were two most serious obstacles to be avoided—one was placing an army on the Island of Cuba before our Navy controlled the Cuban waters; and the other was putting an army on the island at a time when a large number of the men must die from the diseases that have prevailed in that country, according to all statistics, for the last one hundred years. For the latter reason I addressed a letter to the Secretary of War, under date of April 18, 1898, forwarding a communication from Surgeon-General Sternberg regarding the danger of putting an army in Cuba during the sickly season, and at the same time urged the plan of harassing the Spanish forces and doing the enemy the largest amount of injury during the time necessary for our Navy to demonstrate its superiority—the rainy or sickly season and the time actually required to equip and instruct the volunteer forces with the least possible loss to ourselves. In that letter I also asserted the

belief I have entertained from the first, that we could secure the surrender of the Spanish army in the Island of Cuba without any great sacrifice of life.

The following is a copy of the letter referred to:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 18, 1898.

SIR: Referring to my former letters concerning healthful camps for the troops and the uncertainty of Congress requiring an army to move to Cuba at this season of the year, I would respectfully call attention to the letter of the Surgeon-General of the Army, dated Washington, March 25, of this year, as to the danger of putting an army in Cuba during what is known as the "rainy" or "sickly" season. That opinion is also confirmed by reports of Dr. James Guiteras, of Philadelphia, a well-known authority on yellow fever, and others.

In my opinion it is extremely hazardous, and I think it would be injudicious, to put an army on that island at this season of the year, as it would undoubtedly be decimated by the deadly disease, to say nothing of having to cope with some 80,000 troops, the remnant of 214,000, that have become acclimated, and that are equipped with 183 guns. And still another element of extreme danger would be to place an army there with the possibility of our own Navy not being able to keep the waters between our own territory and that island clear of hostile ships or fleets.

By mobilizing our force and putting it in healthful camps and using such force as might be necessary to harass the enemy and doing them the greatest injury with the least possible loss to ourselves, if our Navy is superior to theirs, in my judgment, we can compel the surrender of the army on the island of Cuba with very little loss of life and possibly avoid the spread of yellow fever over our own country.

There is still time, if this is favorably considered, to put a small force of regular troops, number approximately 18,000 men, in healthful camps until such time as they can be used on the Island of Cuba with safety.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

In order that the volunteers should as speedily and efficiently as possible soon after the first call for volunteers was made, and that their wants and necessities might be anticipated, the following letter was addressed to the honorable Secretary of War:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 26, 1898.

SIR: I regard it of the highest importance that the troops called into service by the President's proclamation be thoroughly equipped, organized, and disciplined for field service. In order that this may be done with the least delay, they ought to be in camp approximately sixty days in their States, as so many of the States have made no provision for their State militia, and not one is fully equipped for field service. After being assembled, organized, and sworn into service of the United States, they will require uniforms, tentage, complete camp equipage, arms, and ammunition, and a full supply of stationery, including blank books and reports for the quartermaster's, commissary, medical, and ordnance departments. They will also require complete equipment of ordnance, quartermaster's, commissary, and medical supplies, hospital appliances, transportation, including ambulances, stretchers, etc. The officers and noncommissioned officers will have to be appointed and properly instructed in their duties and responsibilities, and have some instruction in tactical exercises, guard duties, etc., all of which is of the highest importance to the efficiency and health of the command. This preliminary work should be done before the troops leave their States. While this is being done, the general officers and staff officers can be appointed and properly instructed, large camps of instruction can be judiciously selected, ground rented, and stores collected. At the end of sixty days the regiments, batteries, and troops can be brigaded and formed into divisions and corps, and proper commanding generals assigned, and this great force may be properly equipped, molded, and organized into an effective army with the least possible delay.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

Congregating tens of thousands of men, many of whom were not uniformed, and scarcely any properly equipped, in great camps away from their States, rendered it difficult for them to be properly supplied with food, cooking utensils, camp equipage, blankets, tentage, medical supplies, transportation, etc., and was to a great extent the cause, in my judgment, of the debilitating effect upon the health and strength of the men, who were otherwise in good physical condition. The material necessary to clothe and equip large armies was not even manufactured at that time, and the consequent condition of the troops for weeks and months was injurious to the commands in many ways.

There being a lack of uniformity in the amount of clothing furnished by the States and applied for by the different commands, the following general orders were issued:

GENERAL ORDERS, }
No. 54. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 25, 1898.

The following standard of supplies and equipment for field service is published for the information and guidance of troops in the military service of the United States. The allowance is regarded as the minimum for field service:

Headquarters of an army corps.—Three wagons for baggage, etc., or 8 pack mules; 1 two-horse wagon; 1 two-horse spring wagon; 10 extra saddle horses for contingent wants; 2 wall tents for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a division.—Two wagons for baggage, etc., or 5 pack mules; 1 two-horse spring wagon; 1 two-horse wagon; 5 extra saddle horses for contingent wants; 1 wall tent for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a brigade.—One wagon for baggage, or 5 pack mules; 1 two-horse spring wagon; 2 extra saddle horses for contingent wants; 1 wall tent for the commanding general; 1 wall tent for every two officers of his staff.

Allowance of transportation for regiment of cavalry, 49 wagons or 144 pack animals.

Allowance of transportation for battery light artillery, 4 wagons.

Allowance of transportation for regiment of infantry, 25 wagons.

Supplies to be carried in wagons per company: Ten days' field rations per man; 100 rounds of ammunition per soldier; 250 pounds of officers' baggage and supplies; tentage; grain for animals; utensils for each company mess, not to exceed 350 pounds for each troop, battery, or company; horseshoes, nails, tools, and medicines for cavalry horses, not to exceed 300 pounds; to each soldier or civilian employee (compactly rolled in one piece of shelter tent), 1 blanket, 1 poncho, and 1 extra suit of undergarments.

Whenever the amount of rations or grain varies from the above, the weight to be carried per 6-mule wagon may be increased or diminished, but should not exceed 4,000 pounds, and for 4-mule wagon 3,000 pounds, and if possible should be less per wagon.

Whenever obtainable on line of march, full forage will be allowed all animals, the rate of purchase to be regulated by the quartermaster's department.

To be carried on the person or horse: One overcoat, 1 piece of shelter tent, 50 rounds of rifle or carbine, and 24 rounds of revolver ammunition.

Supplies to be carried on pack mules for one troop of cavalry: Five days' field rations per man; 100 rounds of ammunition per soldier.

The utensils for each troop of cavalry must not exceed 350 pounds.

The weight of load per sparejo must never exceed 250 pounds, and should, if possible, be less than 200 pounds.

Troop of cavalry, company of infantry, or light battery.

	Troop of cavalry.	Company of infantry.	Light battery.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Field rations, 10 days: Cavalry, 100 men; infantry, 106; artillery, 125 ..	3,640	3,858	4,550
Ammunition, 100 rounds: Cavalry, 100 men; infantry, 106 men.....	725	769	.....
Officers' baggage and supplies	250	250	250
Tentage (7 conical wall for cavalry and infantry, each; 9 for light battery)	854	854	1,098
Grain for animals, 10 days, 6 pounds: Cavalry, 115; infantry, 12; artillery, 126	6,900	720	7,560
Utensils for each company mess	350	350	350
Horseshoes, nails, tools, and medicines for cavalry and artillery horses..	300	.....	325
Soldiers' baggage: Each 1 blanket, 1 poncho, 1 extra suit of undergarments, and 1 piece shelter tent	1,662	1,761	2,078
Total.....	14,681	8,562	16,211

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

The publication of the above order was delayed from May 16 to May 25, 1898; and the order specifying the allowance of wheel transportation, tentage, etc., for the Medical Department of the Army, including ambulances, stretchers, litter bearers, etc., was not published until June 22, 1898.

The regular infantry was ordered, April 15, 1898, to New Orleans, Mobile, and Tampa, preparatory to an immediate movement to Cuba should war be declared. This order, however, was partially suspended, and a part of the regular infantry, with the artillery and cavalry, ordered to camp at Chickamauga Park. On May 10 the regular artillery and cavalry were ordered from Chickamauga to Tampa, preparatory to a movement on Cuba. Later 70,000 men were ordered to move on Cuba, and commissary stores for ninety days for the men and thirty days' stores for the animals were ordered to be concentrated at Tampa. None of these movements on Cuba, however, materialized. The want of proper equipment and ammunition rendered the movement impracticable.

While troops were being assembled at Tampa, Mobile, New Orleans, Chickamauga, Washington, and in the different States, an expedition to the Philippine Islands was gathered at San Francisco under the command of Maj. Gen. Wesley Merritt. The command was well organized and as well supplied as it was possible with the means available. The expedition sailed May 25, 1898, and was well conducted and eminently successful in every way. Full reports have been submitted by General Merritt and his subordinate officers.

As soon as hostilities were commenced expeditions were immediately organized to give aid and support to the Cubans in the way of supplying them with arms, munitions of war, and supplies, wherever and whenever possible.

A short time before the commencement of the war, there left Washington, from the Bureau of Military Information, two officers, Lieut. A. S. Rowan and Lieut. H. H. Whitney, to attempt the most difficult and dangerous enterprise of ascertaining existing conditions in the Islands of Cuba and Porto Rico, respectively. Their efforts were eminently successful. Both of these officers penetrated the enemy's

country and obtained most accurate and valuable information regarding the position of the military and naval forces, the defenses, and the topographical and climatic features of the country, all of which was of great value in subsequent military operations. Lieutenant Rowan left the United States on April 9 and landed April 24 at El Portillo, about 70 miles west of Santiago de Cuba. He went into the interior, met General Garcia, of the Cuban army, and remained with him for a short time, then, together with Brig. Gen. Enrique Collazo and Lieut. Col. Carlos Hernandez, of General Garcia's staff, passed up to Manati on the north coast, and on May 4 went in an open boat to Nassau, New Providence, returning to the United States May 13, 1898.

Lieutenant Whitney left Key West May 5 for Porto Rico, where he arrived the 15th, and after exploring, under disguise, the southern portion of the island, left on June 1, returning to the United States June 9.

The first expedition with arms and supplies for the Cubans was started from Key West under the direction of Col. R. H. Hall, Fourth Infantry (now brigadier-general, United States Volunteers). It landed on the coast, under charge of Capt. J. J. O'Connell, First United States Infantry, Lieut. W. M. Crofton, First Infantry, being the first officer to land on Cuban soil after the commencement of hostilities.

Several expeditions were subsequently made by Col. J. H. Dorst, Lieut. C. P. Johnson, Tenth Cavalry, and others.

Also, a strong expedition was organized, consisting of 5,000 men, under the command of the senior officer then at Tampa, Maj. Gen. W. R. Shafter, the objective point being Tunas, on the south side of Cuba, where it was expected to open communication with the forces under General Gomez and support and cooperate with him in that mountain region (which is a healthful part of Cuba), and also to furnish all the supplies needed by that force. This expedition, when fully prepared, was delayed on account of the movement of Admiral Cervera's fleet from Cape Verde Islands to the waters of the West Indies, and the movement of our troops was suspended awaiting the result of the expected conflict between that fleet and our own.

An important expedition, under Lieut. Col. Dorst, U. S. V., sailed from Key West to the north of Nassau, New Providence; thence directly south, landing at the harbor of Banes, on the north coast of Cuba, which has been held during the war by the Cubans, where he remained five days, landing a steamer load of the munitions of war most needed, including 7,500 rifles, 1,000,000 cartridges, 5,000 uniforms, and other material needed by the 10,000 Cubans under General Garcia.

The following general order was issued on Memorial Day:

GENERAL ORDERS, }
No. 57. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 30, 1898.

After a prolonged period of peace our Army is once more called upon to engage in war in the cause of justice and humanity. To bring the military forces to the highest state of efficiency and most speedily accomplish what is expected should be the earnest effort and call forth the best energies of all its members of whatsoever station.

The laws and regulations which govern military bodies in civilized countries have been developed to their present perfection through the experience of hundreds of years, and the faithful observance of those laws and regulations is essential to the honor and efficiency of the Army.

All authority should be exercised with firmness, equity, and decorum on the part of superiors, and should be respected by implicit obedience and loyal support from subordinates.

Every officer of whatever grade will, so far as may be in his power, guard and preserve the health and welfare of those under his charge. He must labor diligently and zealously to perfect himself and his subordinates in military drill, instruction and discipline; and, above all, he must constantly endeavor, by precept and example to maintain the highest character, to foster and stimulate that true soldierly spirit and patriotic devotion to duty which must characterize an effective army. The Major-General Commanding confidently trusts that every officer and soldier in the service of the Republic, each in his proper sphere, will contribute his most zealous efforts to the end that the honor and character of the Army may be preserved untarnished and its best efforts crowned with success.

This order is given upon a day sacred to the memory of the heroic dead, whose services and sacrifices afford us example and inspiration, and it is expected that all will be fully impressed with the sacred duty imposed upon the Army by the Government of our beloved country.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

Definite information having been received that Cervera's fleet had been inclosed in the harbor of Santiago de Cuba by the navy, orders were given to General Shafter, May 30, 1898, to place his troops on transports and go to the assistance of the navy in capturing that fleet and harbor. It was expected that the transports engaged at that time would convey some 25,000 men.

I desired to go with this command, and sent the following telegram to the honorable Secretary of War:

[Telegram.]

HEADQUARTERS OF THE ARMY,
Tampa, Fla., June 5, 1898.

The SECRETARY OF WAR, *Washington, D. C.:*

This expedition has been delayed through no fault of anyone connected with it. It contains the principal part of the Army, which, for intelligence and efficiency, is not excelled by any body of troops on earth. It contains 14 of the best conditioned regiments of volunteers, the last of which arrived this morning. Yet these have never been under fire. Between 30 and 40 per cent are undrilled, and in one regiment over 300 men had never fired a gun. I request ample protection while at sea at all times for this command from the Navy. This enterprise is so important that I desire to go with this army corps, or to immediately organize another and go with it to join this and capture position No. 2. Now that the military is about to be used, I believe that it should be continued with every energy, making the most judicious disposition of it to accomplish the desired result.

MILES,
Major-General Commanding Army.

June 6, the following telegram was received:

WASHINGTON, D. C., June 6, 1898—2.35 p. m.

Major-General MILES, *Tampa, Fla.:*

The President wants to know the earliest moment you can have an expeditionary force ready to go to Porto Rico large enough to take and hold island without the force under General Shafter.

R. A. ALGER, *Secretary of War;*

and reply sent that such an expedition could be ready in ten days.

It was found that many of the steamers were not suitable for transport service, they having been built entirely for freight steamers and not equipped for properly conveying troops and munitions of war. The accumulation of the large amount of supplies and war material for the 70,000 men above mentioned at Tampa had crowded that place, and, owing to the absence of depots and facilities for handling that amount of material, occasioned great delay in properly equipping the expedition intended for Santiago. It was, however, supplied, and orders (hereto attached) given for the proper embarkation of the troops, which were ready to sail June 8,

1898. The movement was, however, suspended, owing to the report received that Spanish war vessels had been seen in the Nicholas Channel. The expedition, consisting of 803 officers and 14,935 men, finally sailed on June 14, leaving some 10,000 troops that were expected to move with this expedition, but which could not do so, owing to insufficient transportation.

IN THE FIELD, TAMPA, FLA., *June 11, 1898.*

SIR: Please ascertain whether the following has been attended to in connection with your fleet of transports:

Have commanding officers required their transport officers to make a list of the contents of each ship, where stored, the bulk of such stores, and an estimate of how many wagonloads there are in each vessel? Do the commanding officers of organizations know exactly where their supplies are? Have arrangements been made in order that if so many rations of any kind, ammunition, hospital supplies, etc., should be required, that they would know at once where they can be found? Have transports been supplied with stern anchors to hold them in place and afford a lee for the landing of troops in case of necessity when sea is somewhat rough? What kind of small boats are supplied to each ship for the landing of the troops of that ship? Has a list been made of them and the total number of men they can safely land at one time? Have stores been put upon transports with a view that each organization's should be complete?

The great importance of these details can not be overestimated. In landing, stores intended for one command are liable to be sent to another, and the necessity of having stores that may be needed accessible at once is manifest.

I would suggest that thorough attention be required to every detail in order to insure perfect order in the disembarking of your command.

Respectfully, yours,

MILES,
Major-General Commanding.

Gen. WILLIAM R. SHAFTER,
Port Tampa, Fla.

The following dispatch was received June 15:

WASHINGTON, D. C., *June 15, 1898.*

Major-General MILES, *Tampa, Fla.:*

Important business requires your presence here; report at once. Answer.
R. A. ALGER, *Secretary of War.*

On June 24, 1898, I submitted a plan of campaign, as follows:

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 24, 1898.

SIR: I have the honor to submit the following:

With the capture of Santiago de Cuba it is expected we will have several thousand Spanish prisoners; and with the capture of the second objective position (Porto Rico), now under consideration, it is expected we will add to the number, making, it is hoped, in the aggregate at least 30,000 prisoners.

After the capture of the position next after Santiago de Cuba, it would be, in my judgment, advisable to take some deep-water harbors on the northern coast of Cuba, which would be available, not only for our Army, but also for the Navy, as safe ports for our transports, supply ships, and naval vessels between Key West and Porto Rico. It is also important that we should select some point at which to disembark our mounted troops and light artillery, with which our Government is well supplied. We will have in a few weeks upward of 15,000 cavalry. This force, with the light artillery and a small body of infantry, will make a most formidable army corps with which to conduct a campaign in the interior of Cuba.

The most available point, it appears to me, would be the harbor of Neuvas, which has 28½ feet of water. From there the command could move to Porto Principe, one of the principal cities in the Island of Cuba. Using that as a base, it could move through the rolling country, which is reported to be free from yellow fever, to Poron and Taguayabon, and thence to Villa Clara; or, by a more southerly route, from Porto Principe to Ciego de Avilla; thence to Spiritus, and thence to Ville Clara. A road could be built at the rate of 5 miles per day as that army corps marches; also we would find two railroad bases between Porto Principe and Ville Clara.

To move mounted troops over from Florida to Cuba and make this march would undoubtedly consume the time up to nearly the 30th of September.

This army corps would also have the assistance of all the available forces of Garcia

and Gomez, and would by that time be occupying practically two-thirds of the Island of Cuba.

If no serious force was encountered, this army corps would continue its march on the south side of Havana. If a large force of Spanish troops, sufficient to check the march, was moved to the vicinity of Villa Clara, then the entire army with which we purpose to invade Cuba could be moved between the forces at Villa Clara and Havana, dividing the Spanish forces and defeating them in detail.

I make this suggestion as having three advantages: First, we could employ reasonable compensation such prisoners as desired occupation in road building; second, we could move into the interior of Cuba our large cavalry command without serious molestation; third, we would be operating during the rainy or sickly season in the most healthful parts of Cuba, practically free from yellow fever, and at the same time be occupying a large portion of the enemy's territory.

If this proposition does not meet with favor, then, after the capture of Santiago de Cuba and other places to the east, we could move the entire force to the west of Havana and conduct the campaign from the deep harbors on that coast. My judgment, however, is decidedly in favor of the first plan of campaign.

Before reaching Villa Clara we would undoubtedly have upward of 50,000 prisoners, and if we could, by judicious, humane treatment, use them in a way that would be advantageous to themselves as well as to our interests, I think it would be advisable. There would be one great danger in moving them to our own territory an establishing a large camp of prisoners, and that is, that they would bring the germ of disease with them and spread them among our own people, as many Americans would have to be employed on the ships and railroads, together with the guard necessary to control them.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

The SECRETARY OF WAR.

The main features of the above plan of campaign were submitted in my letters of May 26 and 27.

The following order was received to *organize an expedition for operation against the enemy in Cuba and Porto Rico:*

WASHINGTON, D. C., June 26, 1898.

SIR: By direction of the President an expedition will be organized with the least possible delay, under the immediate command of Major-General Brooke, United States Army, consisting of three divisions taken from the troops best equipped in the First and Third Army Corps and two divisions from the Fourth Army Corps, for movement and operation against the enemy in Cuba and Porto Rico. The command under Major-General Shafter, or such part thereof as can be spared from the work now in hand, will join the foregoing expedition, and you will command the force thus united in person.

Transports for this service will be assembled at Tampa with the least possible delay. The naval forces will furnish convoy, and cooperate with you in accomplishing the object in view. You will place yourself in close touch with the senior officer of the navy in those waters, with the view to harmonious and forceful action.

Estimates will be made by you immediately in the several staff departments for the necessary supplies and subsistence, such estimates to be submitted to the Secretary of War.

For the information of the President, copies of all orders and instructions given by you from time to time will be forwarded on the day of their issue to the Adjutant-General of the Army. Also daily reports of the state and condition of your command will be made to the Secretary of War direct.

It is important that immediate preparation be made for this movement, and, when ready, report to this Department for further instructions.

Very respectfully,

R. A. ALGER,
Secretary of War.

Maj. Gen. NELSON A. MILES,
United States Army, Washington, D. C.

While these movements were in progress the capture of Porto Rico had already been determined upon and transports were being gathered for an expedition for that purpose. It was my opinion that during the interim before such an expedition could be equipped and organized, it would be advisable to utilize a small portion of the troops then available at Tampa to take the Isle of Pines, off the south coast of Cuba. It was then occupied by a very small force of Spanish troops, and was being

used as a base for smuggling supplies to the Island of Cuba. It was advisable, in my opinion, to take the Isle of Pines, as it was a healthful sanitarium, entirely free from yellow fever, swept by the ocean breezes, had a high altitude, and, there being large public buildings on the island, it would have been most suitable for large hospitals and camps of prisoners. I also deemed it advisable to take the deep-water harbor of Nipe, on the north coast of eastern Cuba, in order to make it available for our naval ships and transports in case of hurricanes, which were liable to occur at that season of the year, and also for use as a coaling station.

The yellow fever at this time had broken out in Mississippi, and it was feared it might spread over the Southern States. The safety of the military camps was then a matter of great importance, and after consulting with the best authorities I advised that the troops at Mobile be sent to Mount Vernon, Ala., which has been a refuge for the garrisons on the Gulf for many years; also to Miami, on the east coast of Florida, another place of refuge, and also to Fernandina, Fla., in order to isolate the troops as much as possible from railroad centers, where they would be likely to become infected by the traveling public. I also recommended that a portion of the troops at Chickamauga be sent to Fernandina and also to Porto Rico, and at the same time suggested that troops be stationed in the Loudoun and Shenandoah valleys, in the vicinity of Antietam, and on Long Island Sound. These recommendations were made in order to avoid overcrowding the larger camps at Chickamauga and Camp Alger.

During this time Lieutenant Rowan had returned from his journey to Cuba, bringing with him to Washington Brigadier-General Collazo and Lieutenant-Colonel Hernandez, of General Garcia's staff. He also brought very important information concerning the active operations of the Cubans against the Spanish troops, and the location and strength of the Spanish forces in the eastern part of Cuba, numbering at that time some 31,000 men. The two Cuban officers mentioned accompanied me to Tampa, and Colonel Hernandez, having received permission from the Navy Department to be conveyed by a United States vessel to the harbor of Banes, carried the following letter from me to General Garcia:

HEADQUARTERS OF THE ARMY,
In the Field, Tampa, Fla., June 2, 1898.

DEAR GENERAL: I am very glad to have received your officers, General Enrique Collazo and Lieut. Col. Carlos Hernandez, the latter of whom returns to-night with our best wishes for your success.

It would be a very great assistance if you could have as large a force as possible in the vicinity of the harbor of Santiago de Cuba, and communicate any information, by signals, which Colonel Hernandez will explain to you, either to our navy or to our army on its arrival, which we hope will be before many days.

It would also assist us very much if you could drive in and harass any Spanish troops near or in Santiago de Cuba, threatening or attacking them at all points, and preventing, by every means, any possible reinforcement coming to that garrison. While this is being done, and before the arrival of our army, if you can seize and hold any commanding position to the east or west of Santiago de Cuba, or both, that would be advantageous for the use of our artillery, it will be exceedingly gratifying to us.

With great respect and best wishes, I remain, very respectfully,

NELSON A. MILLS,
Major-General, Commanding United States Army.
Lieutenant-General GARCIA, Cuban Army.

This letter was sent in anticipation of the movement of the command under General Shafter, which sailed twelve days later. Colonel Hernandez left Key West with

it June 2; General Garcia received it June 6, and I received his reply by cable June 9, of which the following is a copy:

MOLE ST. NICHOLAS (via Washington) *June 9, 1898.*

General MILES,
Commanding United States Army:

Garcia's reply on June 6 to your letter of June 2:

"Will take measures at once to carry out your recommendation, but concentration of force will require some time. Roads bad and Cubans scattered. Will march without delay. Santiago de Cuba well fortified with advanced intrenchments, but believe good artillery position can be taken. Spanish force approximate 12,000 between Santiago de Cuba and Guantanamo, 3,000 militia. Will maintain a Cuban force near Holguin to prevent sending reinforcements to Santiago."

The above given to me by Admiral Sampson to forward to you.

ALLEN.

Also, the following is an extract from a cablegram from Admiral Sampson to the Secretary of the Navy, which was repeated to me at Tampa, June 12, for my information:

MOLE ST. NICHOLAS, HAITI.

General Miles's letter received through Colonel Hernandez on June 6. Garcia regards his wishes and suggestions as orders, and immediately will take measures to concentrate forces at the points indicated, but he is unable to do so as early as desired on account of his expedition to Banes Port, Cuba, but he will march without delay. All of his subordinates are ordered to assist to disembark the United States troops and to place themselves under orders. Santiago de Cuba well fortified, with advanced intrenchments, but he believes position for artillery can be taken as Miles desires. (Approximate) twelve thousand (12,000) regulars and three thousand (3,000) militia between Santiago and Guantanamo. He has sent force in order to prevent aid going to Santiago from Holguin. Repeats every assurance of good will, and desires to second plans.

SAMPSON.

It will be observed that General Garcia regarded my requests as his orders, and promptly took steps to execute the plan of operations. He sent 3,000 men to check any movement of the 12,000 Spaniards stationed at Holguin. A portion of this latter force started to the relief of the garrison at Santiago, but was successfully checked and turned back by the Cuban forces under General Fera. General Garcia also sent 2,000 men, under Perez, to oppose the 6,000 Spaniards at Guantanamo, and they were successful in their object. He also sent 1,000 men, under General Rios, against the 6,000 men at Manzanillo. Of this garrison, 3,500 started to reinforce the garrison at Santiago, and were engaged in no less than thirty combats with the Cubans on their way before reaching Santiago, and would have been stopped had General Garcia's request of June 27 been granted. With an additional force of 5,000 men General Garcia besieged the garrison of Santiago, taking up a strong position on the west side and in close proximity to the harbor, and he afterwards received General Shafter and Admiral Sampson at his camp near that place. He had troops in the rear, as well as on both sides, of the garrison at Santiago before the arrival of our troops.

The expedition against Santiago, commanded by Major-General Shafter, landed at Daiquiri and Siboney June 22, 23, and 24. The subsequent movements of the expedition against the garrison of Santiago have been described in the several communications and reports of commanding officers there engaged.

On July 2 the following dispatch was received:

PLAYA DEL ESTE, *July 1, 1898.*

ADJUTANT-GENERAL'S OFFICE, UNITED STATES ARMY,
Washington, D. C.:

Siboney. Had a very heavy engagement to-day, which lasted from 8 a. m. till sundown. We have carried their outer works and are now in possession of them.

There is now about three-quarters of a mile of open country between my lines and city. By morning troops will be intrenched and considerable augmentation of force will be there. General Lawton's division and General Bates's brigade, which have been engaged all day in carrying El Caney, which was accomplished at 4 p. m., will be in line and in front of Santiago during the night. I regret to say that our casualties will be above 400. Of these not many are killed.

W. R. SHAFTER, *Major-General.*

And on the next day the following dispatch was received:

PLAYA DEL ESTE, *July 3, 1898.* (Camp near Sevilla, Cuba, 3.)

The SECRETARY OF WAR, *Washington:*

We have the town well invested on the north and east, but with a very thin line. Upon approaching it we find it of such a character and the defenses so strong it will be impossible to carry it by storm with my present force, and I am seriously considering withdrawing about 5 miles and taking up a new position on the high ground between the San Juan River and Siboney, with our left at Sardinero, so as to get our supplies to a large extent by means of the railroad, which we can use, having engines and cars at Siboney. Our losses up to date will aggregate a thousand, but list has not yet been made; but little sickness outside of exhaustion from intense heat and exertion of the battle of the day before yesterday and the almost constant fire which is kept up on the trenches. Wagon road to the rear is kept up with some difficulty on account of rains, but I will be able to use it for the present. General Wheeler is seriously ill, and will probably have to go to the rear to-day. General Young also very ill, confined to his bed. General Hawkins slightly wounded in foot. During sortie enemy made last night, which was handsomely repulsed, the behavior of the regular troops was magnificent. I am urging Admiral Sampson to attempt to force the entrance of the harbor, and will have a consultation with him this morning. He is coming to the front to see me. I have been unable to be out during the heat of the day for four days, but am retaining the command. General Garcia reported he holds the railroad from Santiago to San Luis, and has burned a bridge and removed some rails; also that General Pando has arrived at Palma, and that the French consul with about four hundred French citizens came into his lines yesterday from Santiago. Have directed him to treat them with every courtesy possible.

SHAFTER, *Major-General.*

11.44 A. M.

To which I cabled the following answer:

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 3, 1898.

General SHAFTER, *Playa del Este, Cuba:*

Accept my hearty congratulations on the record made of magnificent fortitude, gallantry, and sacrifice displayed in the desperate fighting of the troops before Santiago. I realize the hardships, difficulties, and sufferings, and am proud that amid those terrible scenes the troops illustrated such fearless and patriotic devotion to the welfare of our common country and flag. Whatever the results to follow their unsurpassed deeds of valor, the past is already a gratifying chapter of history. I expect to be with you within one week with strong reinforcements.

MILES,
Major-General, Commanding.

HEADQUARTERS FIFTH ARMY CORPS,
Near Santiago, Playa, July 4, 1898.

Maj. Gen. NELSON A. MILES,
Commanding the Army of the United States, Washington:

I thank you in the name of the gallant men I have the honor to command for splendid tribute of praise which you have accorded them. They bore themselves as American soldiers always have. Your telegram will be published at the head of the regiments in the morning. I feel that I am master of the situation and can hold the enemy for any length of time. I am delighted to know that you are coming, that you may see for yourself the obstacles which this army had to overcome. My only regret is the great number of gallant souls who have given their lives for our country's cause.

SHAFTER.

The following dispatch was also received from General Shafter:

HEADQUARTERS FIFTH ARMY CORPS,
CAMP NEAR SAN JUAN RIVER,
Via Haiti, Playa del Este, July 4, 1898.

ADJUTANT-GENERAL, *Washington:*

If Sampson will force an entrance with all his fleet to the upper bay of Santiago, we can take the place within a few hours. Under these conditions I believe the

town will surrender. If the Army is to take the place, I want 15,000 troops speedily, and it is not certain that they can be landed, as it is getting stormy. Sure and speedy way is through the bay. Am now in position to do my part.

SHAFTER, *Major-General.*

On receipt of these communications it was decided that I should go immediately to Santiago with the reinforcements already en route and that were being moved as rapidly as possible. Before leaving Washington it was my purpose to land sufficient forces on the west side of the harbor of Santiago to either open the entrance to our fleet or enfilade the enemy's line and take their position in reverse. I left Washington on the evening of July 7, arrived at Columbia at 5 p. m. on the 8th; thence took a special train to Charleston, reaching there in time to go on board the fast steamer *Yale*, already loaded with 1,500 troops, and, with the steamer *Columbia* accompanying, arrived opposite the entrance of Santiago Harbor on the morning of July 11. The fleet under command of Admiral Sampson was then bombarding the Spanish position. Before reaching Santiago I prepared the following note to Admiral Sampson and forwarded it to him by Captain Wise, commander of the *Yale*, immediately upon our arrival. Admiral Sampson was then on board the flagship *New York*, in close proximity to the entrance of Santiago Harbor, and in full view of Morro Castle.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. *YALE*,
Off Siboney, Cuba, July 11, 1898.

Admiral SAMPSON,
Commanding United States Fleet.

SIR: I desire to land troops from the *Yale*, *Columbia*, and *Duchesse* to the west of the bay of Santiago Harbor, and follow it up with additional troops, moving east against the Spanish troops defending Santiago on the west. I will be glad if you can designate the most available point for disembarking the troops, and render all the assistance practicable to the troops as they move east.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

Admiral Sampson immediately came on board the *Yale*. I explained to him the purpose of my presence and told him that I desired the cooperation of the Navy in the plan above stated. He cordially acquiesced in the plan, and offered every assistance of his fleet to cover the debarkation of the troops and also to enfilade the Spanish position with the guns of the ships. When this arrangement had been concluded, I went on shore and opened communication with General Shafter. I asked him if he had sufficient troops on the east side of the harbor of Santiago to maintain his position, and he replied that he had. I then gave directions for General Garretson to disembark all the troops on the *Yale*, *Columbia*, and other transports that were there or expected to arrive, viz, the *Duchesse* and *Rita*, whenever he should receive orders.

On the following morning I rode from Siboney to the headquarters of General Shafter. After consulting with him, he sent a communication to General Toral, saying that the Commanding General of the American Army had arrived in his camp with reinforcements, and that we desired to meet him between the lines at any time agreeable to him. He replied that he would see us at 12 o'clock the following day. That evening I became apprised of the fact that negotiations regarding a surrender had been pending between the commanding general and the Spanish commander, but no definite conclusions had been reached. Before leaving Washington I was aware of the fact that yellow fever had developed among our troops and by this time learned that it had spread so much that there were over a hundred cases,

and the medical officers were undecided as to the extent it might cripple the command. This was the most serious feature of the situation, and impressed me with the importance of the fact that prompt action should be taken, and I so informed the authorities by cable, suggesting that it was a case where discretionary authority should be granted.

At the appointed time, accompanied by Brig. Gen. J. C. Gilmore and Lieut. Col. Marion P. Maus, of my staff, Major-General Shafter, two of his staff officers, and Major-General Wheeler, and Lieutenant Wheeler, aid-de-camp, I met the Spanish general, Toral, with two of his staff officers and an interpreter. After some conversation between General Toral and General Shafter, I informed General Toral distinctly that I had left Washington six days before; that it was then the determination of the Government that this portion of the Spanish forces must either be destroyed or captured; that I was there with sufficient reinforcements to accomplish that object, and that if this was not the case any number of troops would be brought there as fast as steamers could bring them, if it took 50,000 men. I told him that we offered him liberal terms, namely, to return his troops to Spain; and I also pointed out the fact that this was the only way in which his forces could return, they being on an island 3,000 miles away from their own country with no means of succor. He said that under the Spanish law he was not permitted to surrender as long as he had ammunition and food, and that he must maintain the honor of the Spanish arms. My reply was that he had already accomplished that; that he must now surrender or take the consequences, and that I would give him until daylight the next morning to decide. He appealed for longer time, saying it was impossible for him to communicate with his superiors, and upon his request I granted him until 12 o'clock noon.

After thoroughly examining the entire position and riding along the trenches from right to left, I returned to General Shafter's headquarters. Before reaching that point I received the following cablegram from Washington in reply to mine of the evening before:

WASHINGTON, D. C., July 13, 1898. (Received 2.45 p. m.)

Major-General MILES:

You may accept surrender by granting parole to officers and men, the officers retaining their side arms. The officers and men after parole to return to Spain, the United States assisting. If not accepted, then assault, unless in your judgment an assault would fail. Consult with Sampson and pursue such course as to the assault as you jointly agree upon. Matter should be settled promptly.

R. A. ALGER,
Secretary of War.

This left the matter entirely to my discretion—to accept surrender, order an assault, or withhold the same. I sent the following telegram to Admiral Sampson, again requesting him to be ready to cover the landing of the troops, in accordance with our previous arrangement, and fixing the time at 12 o'clock the following day:

HEADQUARTERS FIFTH ARMY CORPS,
Camp near Santiago de Cuba, July 13, 1898.

Admiral W. T. SAMPSON,
Commanding United States Naval Forces, North Atlantic Squadron.

SIR: Please have General Henry's command, now on *Yale*, *Columbia*, and *Duchesse*, ready to disembark at noon to-morrow at Cabanas. Telegraph notification will be sent you at flag station, also at Siboney, when to commence the debarkation.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.

I also sent the following telegrams to General Henry, whom I had placed in command of all the infantry and artillery then on board transports:

HEADQUARTERS OF THE ARMY,
Camp near Santiago, July 13, 1898.

General HENRY, *Commanding Division:*

Have asked Admiral Sampson to be prepared to cover your debarkation at Cabanas to-morrow after 12 noon in case Spaniards do not surrender. Notification will be sent him by telegraph and signal when your troops should go ashore. Make the best use of your troops against the Spanish troops. Avoid surprise or exposing your troops to artillery fire.

MILES, *Commanding.*

HEADQUARTERS OF THE ARMY,
Camp near Santiago, July 13, 1898.

General HENRY, *Siboney, Cuba:*

Major-General commanding directs me to inform you that all movements against the enemy are suspended until 12 noon to-morrow.

J. C. GILMORE, *Brigadier-General.*

On the morning of July 14 Admiral Sampson's fleet was in position to cover the landing of the troops from the transports, which were in the rear and in close proximity to the small harbor of Cabanas, about 2½ miles west from the entrance of the harbor of Santiago. The ground between the harbor of Cabanas and the right flank of General Shafter's command on the north side of the Bay of Santiago, a distance of between 6 and 7 miles, had been occupied by a small force of Cuban troops, and it was my purpose to occupy this ground with a strong body of infantry, and with some 24 pieces of artillery, where the latter could easily reach Morro Castle, as well as enfilade the Spanish lines in front of General Lawton's division. The Spanish commander was well aware of our designs, as the position and movements of the fleet had been in full view of the officers commanding his troops, and they had reported to him having seen 57 vessels, some of them loaded with troops, menacing that part of his position.

Before the time, 12 o'clock on July 14, the following letter was received from General Toral:

SANTIAGO DE CUBA, July 14, 1898.

HONORED SIR: His excellency the general in chief of the army of the Island of Cuba telegraphs from Havana yesterday at 7 p. m. the following: "Believing the business of such importance as the capitulation of that place should be known and decided upon by the Government of His Majesty, I give you notice that I have sent the conditions of your telegram, asking an immediate answer and enabling you also to show this to the General of the American army, to see if he will agree to await the answer of the Government, which can not be as soon as the time which he has decided, as communication by way of Bermuda is more slow than by Key West. In the meanwhile your honor and the General of the American army may agree upon capitulation on the basis of repatriation [returning to Spain]." I have the honor to transmit this to you, in case you may [consider] the foregoing satisfactory, that we may designate persons in representation of himself, who, with those in my name, agree to clauses of the capitulation upon the basis of the return to Spain, accepted already in the beginning by the general in chief of this army.

Awaiting a reply, I am, very respectfully, your servant,

JOSE TORAL, etc.

GENERAL IN CHIEF OF THE AMERICAN FORCES.

On meeting General Toral by appointment at 12 o'clock that day under a flag of truce, at the same place as before, he stated that he was prepared to surrender his command, and that such action was approved by Captain-General Blanco, who had

authorized him to appoint commissioners to agree upon the clauses of capitulation, which he was prepared to do, but that before final action it was proper that the Government at Madrid should know and approve what was done. He said, however, that he was sure that the Government would not fail to indorse his action. His manner was so sincere and the language of General Blanco so positive that I felt no hesitancy in accepting it in good faith, and stated that we would accept the surrender under the condition that the Spanish troops should be repatriated by the United States. General Toral stated that he would surrender all the troops in the department of Santiago de Cuba, many of them from 70 to 100 miles distant and against whom not a shot had been fired; yet the activity of the Cuban troops and their dispositions had been such as to render the Spanish positions exceedingly perilous. This desirable result I regarded as an accomplished fact, and sent the following telegram:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898—12.55 p. m.

The SECRETARY OF WAR, Washington, D. C.:

General Toral formally surrendered the troops of his army corps and division of Santiago on the terms and understanding that his troops would be returned to Spain. General Shafter will appoint commissioners to draw up the conditions of arrangement for carrying out the terms of surrender. This is very gratifying, and General Shafter and the officers and men of this command are entitled to great credit for their tenacity, fortitude, and in overcoming almost insuperable obstacles which they have encountered. A portion of the army has been infected with yellow fever, and efforts will be made to separate those who are infected and those free from it, and to keep those which are still on board ship separated from those on shore. Arrangements will be immediately made for carrying out the further instructions of the President and yourself.

MILES,
Major-General Commanding the Army.

and informed General Shafter that he could appoint the commissioners.

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: You are authorized to appoint commissioners to draw up articles of capitulation on the terms upon which the Spanish division has surrendered, namely, the return of the Spanish troops to Spain at the expense of the United States. The Spanish troops will be supplied at the expense of the United States, and assembled at such place as may be available for their embarkation on the arrival of the necessary transportation.

The attention of the commissioners should be called to the importance of the return of the people that have fled from the city of Santiago and supplying them with food.

The sending of supplies into the harbor on the Red Cross ship and other vessels.

The removal of all obstructions to the entrance of the harbor, or notification to the fleet that no obstacle will be placed in the way of their removing such obstructions.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces.

After learning the real condition of our troops and their urgent necessities, I gave the following instructions:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: The Spanish army having surrendered, the terms of capitulation will be carried into effect with as little delay as practicable, on the understanding that these troops will be returned to Spain at the expense of the United States. You will, with as little delay as practicable, place such troops as are not infected with yellow

fever in separate camps and, as soon as practicable, report the number that will be available for service with another expedition. Those organizations which have been infected with yellow fever every effort will be made to improve their sanitary condition and to check the spread of the disease by placing them in as healthy camps as possible.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces.

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: For a double reason I think it would be advisable to isolate the troops that have just joined your command in separate camps on healthful ground, so as to keep them, if possible, free from infection by yellow fever. It will also form a strong force to meet any force that might by any possibility come from Holguin. Make your disposition accordingly.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces.

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: The cavalry division are separated from their horses and have been doing most extraordinary service. If it is possible, I desire to have them separated from the rest of the command, and in time they can be put on board ship and sent to other fields, as I desire to have them remounted as soon as possible.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding Fifth Army Corps.

The following telegram was received:

WASHINGTON, D. C., July 14, 1898.

Major-General MILES:

The conditions are such, on account of yellow fever, I have ordered all further shipments of troops to Santiago cease. We are now arranging transportation of 25,000 men for Porto Rico. As soon as matters are settled at Santiago I think you had better return and go direct with the expedition. Yellow fever breaking out in camp at Santiago will, I fear, deprive you of the use of our forces there; however, can be determined later. As soon as Santiago falls, the troops must all be put in camp as comfortable as they can be made, and remain, I suppose, until the fever has had its run. It is the most difficult problem to solve, but we are sure you and General Shafter, with the aid of the surgeons in charge, will do all that can be done. Have ordered two immune regiments to Santiago. They will be colored regiments; seems to me will answer to garrison the places as long as our forces have to remain there.

R. A. ALGER,
Secretary of War.

and answered as follows:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898—1.40 p. m.

Hon. SECRETARY OF WAR,
Washington, D. C.:

Your second dispatch received. Have already anticipated in part by giving directions for separating the troops that have been infected, and kept the troops that came on the *Yale*, *Columbia*, *Duchesse*, and part of those on the *Comanche* ready to disembark at Cabanas, on the west side, where I had made all arrangements for putting the troops in on that side of the harbor and opening the entrance to the bay in conjunction with Admiral Sampson. I will now keep these troops away from the

infected districts and will probably let them go ashore at Guantanamo. Other vessels en route will go into the harbor at Guantanamo. Presume that will be a good rendezvous, at least for the troops coming from Tampa. They could come in on the south side and go into a safe harbor there. Will consult with the Admiral with regard to rendezvousing our troops at Porto Rico or one of the islands immediately adjacent thereto. Will keep you fully apprised of any important information.

MILES,
Major-General, Commanding the Army.

The following telegrams were also sent: .

General HENRY, *Siboney, Cuba:*
The enemy have surrendered.

GENERAL WHEELER'S CAMP, *July 14, 1898.*

GILMORE, *Brigadier-General.*

Admiral SAMPSON,
The New York, Siboney, Cuba:

The enemy have surrendered. I will be down to see you soon.

MILES, *Major-General.*

GENERAL WHEELER'S CAMP, *July 14, 1898.*

I left without delay, returning to General Shafter's headquarters, and thence to Siboney. While en route I became fully apprised of the condition of the troops at the fever hospitals, and recognized the great need of immediate action to relieve the threatened danger of the whole command. I had already given directions on the 11th of July for destruction of the infected habitations at Siboney and other places, and now ordered the Twenty-fourth Regiment of United States Infantry to the yellow-fever hospital to police the grounds and nurse the sick. I moved all of the troops then on board transports to Guantanamo.

There was some delay in the final capitulation, owing to the nonagreement at first between the two commissions as to the disposition of the small arms, but it was finally settled by leaving it to the decision of our Government, upon the recommendation of our commissioners that they should be sent to Spain with the troops.

My chief desire, after being sure of the surrender of the garrison at Santiago, was to relieve our troops as speedily as possible by getting them away from the trenches and malarial grounds upon which they were encamped. Dispatches were received and sent as follows:

General MILES:
They surrender.

HEADQUARTERS FIFTH ARMY CORPS, *July 16, 1898.*

SHAFTER.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Off Siboney, Cuba, July 16, 1898.

General SHAFER,
Commanding Fifth Army Corps:

Congratulate you and the Army again. The troops should change camps almost daily, occupying fresh ground until free from the fever. I should think ground parallel to the railroad, where men could bathe in salt water, would be good ground. All blockhouses or places occupied by the Spanish troops should be burned.

MILES,
Major-General, Commanding.

The following indorsement upon the report of board composed of Colonel Greenleaf, chief surgeon of the Army, Maj. Louis A. La Garde, surgeon, and Drs. Guiteras

and Parker, was transmitted to Major-General Shafter, with the following indorsement:

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Off Siboney, Cuba, July 17, 1898.

Respectfully referred to Major-General Shafter, commanding Fifth Army Corps.

This sanitary recommendation has been drawn up by Colonel Greenleaf, chief surgeon of the Army, after a consultation with the yellow-fever experts on duty with the Army, and the commanding general directs that it be complied with as far as possible, the main purpose being the immediate isolation of those affected by the disease of yellow fever from the commands; second, frequent change of camp, and in all cases the selection of fresh ground, uncontaminated with the disease, and in every case, prior to occupation, the ground must be rigidly inspected, and, if necessary, burned over; third, the command must be kept away from all habitations, blockhouses, huts, and shanties of every description that have been occupied by Spanish or Cuban people; fourth, the establishment of guards and a rigid quarantine, to keep all native or Spanish inhabitants out of any of the camps and away from any intercourse of whatever description with the troops. This rule must be thoroughly enforced.

The commanding general further directs that you make daily reports to General Gilmore, adjutant-general at Army headquarters, of the condition of your command and any matters of importance, mentioning specifically the number of men affected with yellow fever, and giving the organization to which they belong.

You will also separate your camps, as far as practicable, so that any organization that may be more seriously affected will not contaminate the whole command.

By order of Major-General Miles:

J. C. GILMORE,
Brigadier-General, U. S. V.

HEADQUARTERS OF THE ARMY,
Playa del Este, July 17, 1898—7 p. m.

General SHAFTER:

What is the condition of your command to-day? Sent you report of medical board, with direction for changing camps, etc. If it is thought more advisable to move troops to fresh camps on the foothills or mountain sides, and surgeons advise, act accordingly.

The *St. Paul* should be unloaded immediately, and every transport unloaded and returned as soon as they are needed.

MILES,
Major-General, Commanding.

SIBONEY, July 17, 1898—8.48 p. m. (Received July 18, 1898.)

General MILES, *On Board Yale*:

Letters and orders in reference to movement of camp received and will be carried out. None is more anxious than myself to get away from here. It seems, from your orders given me, that you regard my force as a part of your command. Nothing will give me greater pleasure than serving under you, General, and I shall comply with all your requests and directions, but I was told by the Secretary that you were not to supersede me in command here. I will furnish the information called for as to condition of command to Gilmore, adjutant-general, Army headquarters.

SHAFTER, *Major-General.*

HEADQUARTERS OF THE ARMY,
Playa del Este, July 18, 1898. (Sent about 11.30 a. m.)

General SHAFTER:

Telegram received. Have no desire and have carefully avoided any appearance of superseding you. Your command is a part of the United States Army, which I have the honor to command, having been duly assigned thereto, and directed by the President to go wherever I thought my presence required, and give such general directions as I thought best concerning military matters, and especially directed to go to Santiago for a specific purpose. You will also notice that the order of the Secretary of War of July 13 left the matter to my discretion. I should regret that any event would cause either yourself or any part of your command to cease to be a part of mine.

Very truly, yours,

NELSON A. MILES,
Major-General, Commanding United States Army.

HEADQUARTERS OF THE ARMY,
Playa del Este, July 18, 1898—12 m.

SECRETARY OF WAR, *Washington, D. C.:*

Regarding your telegram of yesterday, I think it important to go direct to Port Fajardo, Cape de San Juan. All appliances for the expedition should be sent there, if not already en route to Santiago.

Tugs, lighters, construction corps, engineer corps under Colonel Black at Tampa, General Stone's boats now at Jacksonville, artillery, cavalry, siege train, and infantry, ample hospital supplies and appliances and ambulances, full transportation for all the organizations, should all be directed to go to Porto Rico; also officers to establish depots of quartermaster's, commissary, and ordnance supplies, and quartermaster's funds to the extent of \$100,000 for hire of native transportation and purchase of horses, should be sent.

Troops from the North have been heretofore sent, and I would suggest that Kiefer's division, from Miami, Fla., or troops from Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida be sent as a part of the command to Porto Rico.

Paymasters, with ample funds, should be sent at once to Santiago and Porto Rico.

A strong, fast, seagoing dispatch boat should also be sent to Porto Rico.

MILES,
Major-General, Commanding.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Guantanamo Bay, Cuba, July 20, 1898.

General SHAFER, *Commanding:*

As there appears to be a decided increase of yellow-fever cases in your present location, a move should be made of the entire command to the highest ground practicable where the disease is not prevalent. In some cases you can send the troops to the mountains.

By command of Major-General Miles:

J. C. GILMORE, *Brigadier-General.*

The following is an extract from the telegram to the honorable Secretary of War concerning their condition:

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Guantanamo Bay, July 21, 1898.

SECRETARY OF WAR,
Washington, D. C.:

There is not a single regiment of regulars or volunteers with General Shafter's command that is not infected with yellow fever, from one case in the Eighth Ohio to thirty-six in the Thirty-third Michigan.

After consulting with best medical authorities, it is my opinion that the best mode of ridding the troops of the fever will be as I have directed, namely, the troops to go up as high into the mountains as possible, selecting fresh camps every day. If this does not check the spread of the disease, the only way of saving a large portion of the command will be to put them on transports and ship them to the New England coast, to some point to be designated by the Surgeon-General.

MILES,
Major-General, Commanding.

Before leaving Siboney I issued the following general field order:

GENERAL FIELD ORDERS, }
 No. 1.

HEADQUARTERS OF THE ARMY,
Siboney, Cuba, July 16, 1898.

The gratifying success of the American arms at Santiago de Cuba and some features of a professional character both important and instructive I hereby announce to the Army.

The declaration of war found our country with a small Army scattered over a vast territory. The troops composing this Army were speedily mobilized at Tampa, Fla. Before it was possible to properly equip a volunteer force strong appeals for aid came from the Navy, which had inclosed in the harbor of Santiago de Cuba an important part of the Spanish fleet. At that time the only efficient fighting force available was the United States Army, and in order to organize a command of sufficient strength the cavalry had to be sent dismounted to Santiago de Cuba with the infantry and artillery.

The expedition thus formed was placed under command of Major-General Shafter. Notwithstanding the limited time to equip and organize an expedition of this character, there was never displayed a nobler spirit of patriotism and fortitude on the part of officers and men going forth to maintain the honor of their country. After encountering the vicissitudes of an ocean voyage, they were obliged to disembark on a foreign shore and immediately engage in an aggressive campaign. Under drenching storms, intense and prostrating heat, within a fever-afflicted district, with little comfort or rest, either by day or night, they pursued their purpose of finding and conquering the enemy. Many of them, trained in the severe experience of the great war, and in frequent campaigns on the western plains, officers and men alike, exhibited a great skill, fortitude, and tenacity, with results which have added a new chapter of glory to their country's history. Even when their own generals in several cases were temporarily disabled, the troops fought on with the same heroic spirit until success was finally achieved. In many instances the officers placed themselves in front of their commands, and under their direct and skillful leadership the trained troops of a brave army were driven from the thickets and jungles of an almost inaccessible country. In the open field the troops stormed intrenched infantry, and carried and captured fortified works with an unsurpassed daring and disregard of death. By gaining commanding ground they made the harbor of Santiago untenable for the Spanish fleet, and practically drove it out to a speedy destruction by the American Navy.

While enduring the hardships and privations of such a campaign, the troops generously shared their scanty food with the 5,000 Cuban patriots in arms and the suffering people who had fled from the besieged city. With the twenty-four regiments and four batteries, the flower of the United States Army, were also three volunteer regiments. These, though unskilled in warfare, yet, inspired with the same spirit, contributed to the victory, suffered hardships, and made sacrifices with the rest. Where all did so well it is impossible, by special mention, to do justice to those who bore conspicuous part. But of certain unusual features mention can not be omitted, namely, the cavalry dismounted fighting and storming works as infantry, and a regiment of colored troops, who having shared equally in the heroism as well as the sacrifices, is now voluntarily engaged in nursing yellow-fever patients and burying the dead. The gallantry, patriotism, and sacrifices of the American Army, as illustrated in this brief campaign, will be fully appreciated by a grateful country, and the heroic deeds of those who have fought and fallen in the cause of freedom will ever be cherished in sacred memory and be an inspiration to the living.

By command of Major-General Miles:

J. C. GILMORE,
Brigadier-General, United States Volunteers.

I was anxious to proceed as quickly as possible to the Island of Porto Rico, and so telegraphed the authorities in Washington. After some delay authority was granted, and I started from Guantanamo on July 21 with 3,415 infantry and artillery, together with two companies of engineers and one company of the Signal Corps, on nine transports, convoyed by Captain Higginson's fleet, consisting of the battle ship *Massachusetts* (flagship) and two smaller vessels. The *Yale* and *Columbia* were armed ships, but being loaded with troops, they were practically only available as transports. The above number includes the men who were sick, of which there were nearly a hundred, which reduced our effective force to about 3,300 men, and with that number we moved on the Island of Porto Rico, at that time occupied by 8,233 Spanish regulars and 9,107 volunteers.

For several days I had been anxiously looking for the arrival of tugs, launches, and lighters that had been ordered from Santiago, Washington, and Tampa, but none arrived prior to our departure, although I still hoped to meet them as we moved north through the Windward Passage. As all cablegrams concerning our landing place had passed over foreign cables, and as it was important to deceive the enemy (who, I afterwards learned, were marching to and intrenching the ground we were expected to occupy, at the very time we were taking possession of the southern coast of Porto Rico), and nonarrival of launches, lighters, etc., the question of successfully disembarking the command became somewhat serious; and, after all

hope of receiving any appliances of this kind had disappeared, I considered the advisability of finding a safe harbor and capturing necessary appliances from the enemy. I therefore wrote the following letter to Captain Higginson while at sea:

ON BOARD U. S. S. YALE,
En route to Porto Rico, July 22, 1898.

SIR: Our objective point has been Port Fajardo or Cape San Juan, but so much time has occurred since the movement was decided in that direction and such publicity has been given the enterprise, that the enemy has undoubtedly become apprised of our purpose. While it is advisable to make a demonstration near the harbor of San Juan near Port Fajardo, or Port Figueroa, I am not decided as to the advisability of landing at either of these places, as we may find them well occupied by strong Spanish forces. If we draw them to that vicinity, we might find it judicious to quickly move to Porto Guanica, where there is deep water near the shore—4½ fathoms—and good facilities for landing. We can move from Cape San Juan to that point in twelve hours (one night), and it would be impossible for the Spanish to concentrate their forces there before we will be reenforced. I am also informed that there are a large number of strong lighters in the harbors at Ponce and Guanica, as well as several sailing vessels, which would be useful. As it is always advisable not to do what your enemy expects you to do, I think it advisable after going around the northeast corner of Porto Rico, to go immediately to Guanica and land this force and move on Ponce, which is the largest city in Porto Rico. After, or before, this is accomplished we will receive large reinforcements, which will enable us to move in any direction or occupy any portion of the island of Porto Rico.

Your strong vessels can cover our landing and capture any vessels in the harbor of Ponce, Guanica, or the ports on the southern coast; one light vessel can remain at Cape San Juan to notify transports that will arrive where we have landed, and another could scout off the northwest corner of Porto Rico to intercept others and direct them where to find us.

Very respectfully,

NEILSON A. MILES,
Major-General, Commanding United States Army.

Capt. FRANCIS J. HIGGINSON,
Commanding United States Naval Convoy.

The following messages will further explain the circumstances and the final decision to change our course:

[Flag message for Captain Higginson.]

HEADQUARTERS OF THE ARMY,
On Board U. S. S. Yale, July 24, 1898.

General Miles desires, if possible, you send in advance any naval vessel you can spare to the Port Guanica, reported to be without fortifications or torpedoes. If secured, hold, and report quickly to us, Cape San Juan.

It is more important to land at Guanica than at Cape San Juan. If we can land there, he has troops enough to take the harbor of Ponce and let your fleet into that port.

Possibly all of this can be accomplished by going by the south side. Can send Captain Whitney, who was at Ponce in June, to you, if desired. Answer.

[Signal from *Massachusetts*, July 24, 1898.]

All right. Guanica it is. Shall I send orders to transport at Cape San Juan to join at Guanica?

[Answer sent by General Miles.]

Better be sure we can land at Guanica, then send for the transports. You can notify all vessels accordingly. Do you want Whitney?

Captain Whitney was sent to report to Captain Higginson on the *Massachusetts*, with his maps and reports.

[Flag message for Capt. Francis J. Higginson.]

HEADQUARTERS OF THE ARMY,
On Board U. S. S. Yale, July 24, 1898.

SIR: I would call your attention to the railroad between Ponce and Yauco, which I was informed passes right by the sea at one point, El Penon, about 8 miles west of Ponce. A vessel carrying a gun or two dispatched to this point could prevent recon-

forcements from being sent by rail from there to Yauco, or detachments of troops, rolling-stock supplies, etc., from being brought into Ponce from Yauco.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

[Flag message for Capt. Francis J. Higginson.]

HEADQUARTERS OF THE ARMY,
U. S. S. Yale, July 24, 1898.

Railroad from Ponce to Yauco runs close to sea, 6 to 8 miles west Ponce. Shell or destroy this and prevent Spanish troops moving.

NELSON A. MILES,
Major-General, Commanding Army.

Instead of making a demonstration at Fort Fajardo, it was finally decided to go direct to Guanica. We arrived off that point near daylight on July 25, and the harbor was entered without opposition. The guns of the *Gloucester* fired several shots at some Spanish troops on shore. The landing of the marines, sailors, and our troops immediately commenced, and after a short skirmish the Spanish troops were driven from the place, and the flag of the United States was raised on the island.

In this, and in subsequent movements, I was very ably and cordially assisted by the Navy, which rendered invaluable aid in disembarking troops and supplies from the transports, using their steam launches to tow the lighters loaded with men and animals from the transports to the shore. Ten lighters were captured at Guanica and seventy at Ponce.

In the subsequent military operation in the interior, I found Captain Whitney's knowledge of the country, and the information gained by him in his perilous journey through Porto Rico, to be in every respect thoroughly accurate and of great value to me in the conduct of the campaign.

At daylight on the 26th of July, with six companies of the Sixth Massachusetts and one of the Sixth Illinois Volunteer Infantry, under command of Brigadier-General Garretson, an attack was made upon a strong force of Spaniards near Yauco, and after a spirited and decisive engagement the enemy was defeated and driven back, giving us possession of the railroad and the highway to the city of Ponce, and leaving them open for the march of General Henry's command to that place.

On the 27th of July Major-General Wilson arrived in the harbor of Guanica with General Ernst's brigade. The same day Commander Davis, of the *Dixie*, entered the port of Ponce and found that it was neither fortified nor mined. The next morning the fleet and transports, with General Wilson's command, moved into the harbor of Port Ponce. The troops disembarked and marched to the city of Ponce, a distance of 2 miles, and we took formal possession of the city and adjacent country, the Spanish troops withdrawing on the military road to San Juan, and our troops being pushed well forward in that direction. In the meantime General Henry's command had been directed to proceed to Ponce, where he arrived shortly afterwards, joining General Wilson's command.

Before leaving I was aware of the fact that there existed considerable disaffection among the people in the southern portion of the island, and as our force was so much inferior to the Spanish I deemed it advisable, if possible, to encourage this feeling,

and also to impress the people of the island with the good intentions of the American forces, and for this and other reasons I issued the following proclamation:

HEADQUARTERS OF THE ARMY,
Ponce, Porto Rico, July 28, 1898.

To the inhabitants of Porto Rico:

In the prosecution of the war against the Kingdom of Spain by the people of the United States in the cause of liberty, justice, and humanity, its military forces have come to occupy the Island of Porto Rico. They come bearing the banner of freedom inspired by a noble purpose to seek the enemies of our country and yours, and to destroy or capture all who are in armed resistance. They bring you the fostering arm of a nation of free people, whose greatest power is in its justice and humanity to all those living within its fold. Hence, the first effect of this occupation will be the immediate release from your former political relations, and it is hoped a cheerful acceptance of the Government of the United States. The chief object of the American military forces will be to overthrow the armed authority of Spain and to give to the people of your beautiful island the largest measure of liberty consistent with this military occupation. We have not come to make war upon the people of a country that for centuries has been oppressed, but, on the contrary, to bring you protection, not only to yourselves, but to your property, to promote your prosperity, and bestow upon you the immunities and blessings of the liberal institutions of our Government. It is not our purpose to interfere with any existing laws and customs that are wholesome and beneficial to your people so long as they conform to the rules of military administration of order and justice. This is not a war of devastation, but one to give to all within the control of its military and naval forces the advantages and blessings of enlightened civilization.

NELSON A. MILES,
Major-General, Commanding United States Army.

And the following letter of instructions was published for the information and guidance of all concerned:

HEADQUARTERS OF THE ARMY,
Port Ponce, Porto Rico, July 29, 1898.

SIR: I have the honor to inform you that the Major-General Commanding the Army of the United States directs me to communicate to you the following instructions, which will govern you or your successor in the discharge of your duties relating to the military government of the territory now occupied, or hereafter to be occupied, by the United States forces under your command:

The effect of the military occupation of the enemy's territory is the severance of the former political relations of the inhabitants, and it becomes their duty to yield obedience to the authority of the United States, the power of the military occupant being absolute and supreme and immediately operating upon the political conditions of the inhabitants. But generally, as long as they yield obedience to their new condition, security in their person and property and in all other private rights and relations will be duly respected.

The municipal laws, in so far as they affect the private rights of persons and property and provide for the punishment of crime, should be continued in force as far as they are compatible with the new order of things, and should not be suspended unless absolutely necessary to accomplish the objects of the present military occupation. These laws should be administered by the ordinary tribunals substantially as they were before the occupation. For this purpose the judges and other officials connected with the administration of justice may, if they accept the authority of the United States, continue to administer the ordinary laws of the land as between man and man, under the supervision of the commander of the United States forces. Should it, however, become necessary to the maintenance of law and order, you have the power to replace or expel the present officials, in part or altogether, and to substitute others, and to create such new and supplementary tribunals as may be necessary. In this regard you must be guided by your judgment and a high sense of justice.

It is to be understood that under no circumstances shall the criminal courts exercise jurisdiction over any crime or offense committed by any person belonging to the Army of the United States, or any retainer of the Army, or person serving with it, or any persons furnishing or transporting supplies for the Army; nor over any crime or offense committed on either of the same by any inhabitant or temporary resident of the occupied territory. In such cases, except when courts-martial have jurisdiction, jurisdiction to try and punish is vested in military commissions and such provost courts as you may find necessary to establish. The native constabulary, or police force, will, so far as may be practicable, be preserved. The freedom

of the people to pursue their accustomed occupations will be abridged only when it may be necessary to do so.

All public funds and securities belonging to the Spanish Government in its own right, and all movable property, arms, supplies, etc., of such Government, should be seized and held for such uses as proper authority may direct. And whatever real property the Spanish Government may have held should be taken charge of and administered; the revenues thereof to be collected and reported for such disposition as may be made of the same, under instructions from these headquarters.

All public means of transportation, such as telegraph lines, cables, railways, telephone lines, and boats belonging to the Spanish Government, should be taken possession of and appropriated to such use as may be deemed expedient.

Churches and buildings devoted to religious worship, and all schoolhouses, should be protected.

Private property, whether belonging to individuals or corporations, is to be respected, and can be confiscated only as hereinafter indicated. Means of transportation, such as telegraph lines, and cables, railways, and boats, may, although they belong to private individuals or corporations, be seized by the military occupant, but, unless destroyed under military necessity, are not to be retained.

As a result of military occupation of this country, the taxes and duties payable by the inhabitants to the former government become payable to the military occupant; the money so collected to be used for the purpose of paying the necessary and proper expenses under military government.

Private property will not be taken except upon the order of brigade and division commanders in cases of absolute military necessity, and when so taken for the public use of the army will be paid for in cash at a fair valuation.

All ports and places in actual possession of our forces will be opened to the commerce of all neutral nations, as well as our own, in articles not contraband of war, upon payment of the prescribed rates of duty which may be in force at the time of the importation.

A memorandum in respect to the jurisdiction of military commissions and provost courts is herewith inclosed.

Very respectfully,

J. C. GILMORE,
Brigadier-General, U. S. V.

Maj. Gen. J. M. WILSON, U. S. V.,
Commanding First Division, First Corps, Ponce, Porto Rico.

[Inclosure.]

I. Except as hereinafter restricted, and subject to the supervision and control of the commanding general, the jurisdiction of the municipal government and of the civil and criminal courts remain in force.

II. The said criminal courts shall not exercise jurisdiction over any crime or offense committed by any person belonging to the Army of the United States, or any retainer of the Army, or person serving with it, or any person furnishing or transporting supplies for the Army; nor over any crime or offense committed on either of the same by any inhabitant or temporary resident of said territory. In such cases, except when courts-martial have jurisdiction, jurisdiction to try and punish is vested in military commissions and the provost court, as hereinafter set forth.

III. The crimes and offenses triable by military commission are murder, manslaughter, assault and battery with intent to kill, robbery, rape, assault and battery with intent to commit rape, and such other crimes, offenses, and violations of the laws of war as may be referred to it for trial by the commanding general. The punishment awarded by military commission shall conform, as far as possible, to the laws of the United States, or the custom of war. Its sentence is subject to the approval of the commanding general.

IV. The provost court has jurisdiction to try all other crimes and offenses referred to in section II of this order, not exclusively triable by court-martial or military commission, including violations of orders of the laws of war, and such cases as may be referred to it by the commanding general. It shall have power to punish with confinement, with or without hard labor, for not more than * * * or with fine not exceeding * * * or both. Its sentence does not require the approval of the commanding general, but may be mitigated or remitted by him.

V. The judge of the provost court is appointed by the commanding general. When in the opinion of the provost court its power of punishment is inadequate, it shall certify the case to the commanding general for his consideration and action.

Brigadier-General Schwan arrived July 31, and was subsequently instructed to disembark part of the Eleventh Infantry, under Colonel De Russey, at Guanica, and march to Yauco and thence west with an additional force of two batteries of artill-

lery and one troop of cavalry. The following letter of instructions was addressed to General Schwan:

HEADQUARTERS OF THE ARMY,
Port Ponce, Porto Rico, August 6, 1898.

GENERAL: The Major-General Commanding the Army directs me to transmit to you the following instructions:

You will proceed from Ponce with the six companies of the Eleventh Infantry to Yauco, moving by rail if desirable. You will also move by wagon road Troop A, Fifth Cavalry, and two batteries of light artillery. At Yauco you will take the remainder of the Eleventh Infantry and two companies of the Nineteenth and proceed to Sabana Grande, San German, Mayaguez, thence to Lares and Arecibo.

At Yauco you will take with you all the wagon transportation brought from Guanica.

You will drive out or capture all Spanish troops in the western portion of Porto Rico. You will take all necessary precautions and exercise great care against being surprised or ambushed by the enemy, and make the movement as rapidly as possible, at the same time exercising your best judgment in the care of your command to accomplish the object of your expedition.

It is expected that at Arecibo you will be joined by the balance of your brigade. Such rations and supplies will be taken as you decide to be proper and necessary.

Report frequently by telegraph.

Very respectfully,

J. C. GILMORE,
Brigadier-General, U. S. V.

Brig. Gen. THEODORE SCHWAN,
Commanding Brigade, Ponce, Porto Rico.

Major-General Brooke arrived July 31, and was directed to disembark his command at Arroyo, and move thence to Cayel. On August 5 he had a sharp engagement with the Spanish troops at Guayama, which was finally occupied by our forces. An action took place near Guayama on August 8, the Spaniards being driven from their position farther in the direction of Cayel. Arrangements for investing and attacking that place, both directly and in the rear, were promptly made, and were about to be consummated when the order for cessation of hostilities arrived.

On August 9 General Schwan's command advanced from Yauco westward, occupying successively the important towns of Sabana Grande, San German, Lares, and Arecibo, finally entering the city of Mayaguez, after a sharp engagement on August 10 near Hormigueros, in which a strong force of the enemy was engaged. In this action, in which artillery, infantry, and cavalry were employed, the Spanish forces, although strongly posted on ground of their own selection, and skillfully disposed, and being equal in strength to our own, were routed with severe loss, while our own loss was but 1 killed and 16 wounded. The enemy was pursued toward Lares, which town would have been occupied August 13 by our troops had not the order to suspend hostilities been received. Near this place the advance under Colonel Burge encountered the enemy, who was defeated without loss to our force.

In the meantime General Stone had made a practicable road over what had been considered an impassable trail, by way of Adjuntas and Utuado, through the center of the territory; and General Henry moved his command over that road with the object of intercepting the enemy retreating before General Schwan, and later of effecting a junction with him at Arecibo, his advance troops having already reached the immediate vicinity of that place. This operation would have formed a strong division on the line of retreat of the Spanish troops occupying the western portion of the island.

At Coamo a sharp engagement took place on August 9 between the troops of Major-General Wilson's command, under the personal direction of Brigadier-General Ernst, and the Spanish forces at that place. The United States troops, guided by Lieutenant Colonel Biddle, of the Engineers, made a skillful flank movement at Coamo, which was admirably executed by the Sixteenth Pennsylvania Regiment Volunteer Infantry, under Colonel Hulings. Passing over a mountain trail they made a wide detour, coming in rear of the Spanish troops under cover of night without being discovered, and striking the military road to San Juan, cut off the enemy's retreat. In this engagement the commanding officer of the Spanish troops and the second in command were killed, and 167 prisoners taken.

The road to Aibonito was thus cleared and our troops were advanced and well disposed for the capture of the Spanish forces that had taken positions near that place.

At Asomanto, on the 12th of August, the artillery of General Wilson's command began shelling the enemy's position preparatory to an advance in front, while a rear attack was to be made by General Ernst's brigade. This command was under arms and ready to move August 13, when orders were received suspending hostilities.

During the nineteen days of active campaign on the Island of Porto Rico, a large portion of the island was captured by the United States forces and brought under our control. Our forces were in such a position as to make the positions of the Spanish forces, outside of the garrison at San Juan, utterly untenable. The Spaniards had been defeated or captured in the six different engagements which took place, and in every position they had occupied up to that time. The volunteers had deserted their colors, and many of them had surrendered to our forces and taken the oath of allegiance. This had a demoralizing effect upon the regular Spanish troops.

The success of the enterprise was largely due to the skill and good generalship of the officers in command of the different divisions and brigades. Strategy and skillful tactics accomplished what might have occasioned serious loss to achieve in any other way. The loss of the enemy in killed, wounded, and captured was nearly ten times our own, which was only 3 killed and 40 wounded. Thus the Island of Porto Rico became a part of the United States. It embraces nearly 3,700 square miles, and has a population of nearly a million souls. It no longer affords a base of operations for any foreign government, thereby being a menace to ours. Under the rule of nations, which requires troops to remain during a truce in exactly the position they occupied at the time of cessation of hostilities, the commands were obliged to stay where they were, without regard to the suitability of the camping grounds, and as hostilities ceased during the rainy season in Porto Rico, this requirement had an injurious effect upon the health of the troops. They therefore suffered to some extent on account of exposure and the unusual climatic effects incident to the country. As soon as practicable, however, a large portion of the troops were returned in good condition to the United States.

The field and siege artillery were well organized and equipped, under the direction of Brig. Gen. John I. Rodgers, and rendered efficient service wherever used. In my opinion, the siege train should remain as at present organized.

The bureau of military information, under charge of Lieutenant-Colonel Wagner, was exceedingly useful, and furnished valuable and important information

obtained by it regarding the nature of the enemy's country and the position of their forces.

The Signal Corps, under Col. James Allen, rendered very excellent service, especially in the use of ocean cables, and the field telegraph and signal detachment under charge of Major Reber rendered most important service. Telegraph and telephone lines were extended hundreds of miles and followed close to the picket and skirmish lines.

On returning to the United States from Porto Rico, Lieutenant-Colonel Rowan and Lieut. Charles F. Parker made a journey of nearly 2,000 miles through the territory of Cuba, and obtained most valuable information concerning that country and the present condition of its inhabitants, which is both of political and military interest.

I trust that the services of both officers and soldiers in these campaigns may be appreciated by a generous Government and a grateful people. I have recommended a small list of officers who have rendered conspicuous, distinguished, and gallant services for promotion and brevets, and I hope that these recommendations may be favorably considered. I may possibly desire to add a few names to the list already submitted.

It is gratifying to record that during the war not a single defeat has been met, and not a prisoner, color, gun, or rifle has been captured by the enemy. In this respect the war has been most remarkable, and, perhaps, unparalleled. Under all circumstances and in spite of many most trying difficulties the troops have maintained the fortitude of the American character and the honor of their arms.

While but a small portion of the available forces of the United States—approximately, 52,000 men—has been on foreign soil and engaged in fighting a foreign foe, those that have been in the presence of the enemy have fairly demonstrated the character and fortitude of the military forces of the United States.

The experience of the last few months, I trust, will be valuable to the people and Government of the United States. The value of proper defenses for our ports, harbors, and seaport cities, of inestimable wealth, has been demonstrated; and I trust that the system already adopted for coast defenses, the completion of which has been so long delayed, may be carried out without unnecessary delay. I have urged the importance of this in my annual reports for the last thirteen years.

For several years I have urged the importance of the Government's adopting a standard of strength for its military forces that should be commensurate with the interests of the Government in its growth and development, and proportionate to its population and wealth. Spasmodic vibration from a weak and ineffective army to one of gigantic proportions does not seem to be best for the welfare and safety of the nation, and I think it more judicious for the Government to fix a certain percentage of trained military men in proportion to the population. The Army would thereby have a more healthy growth as the nation develops. In fact, this system, if once adopted, would be as practicable for one hundred years as for a single decade. The art of war was never so much an exact science as at the present time. The appliances used in modern warfare are constantly changing, and are steadily increasing in effective force; so that it is of the utmost importance that the Government should have the most skilled and efficient forces practicable. I therefore renew my

former recommendation that the Government authorize enlistments in the Army at the rate of one soldier to every 1,000 of the population. This would practically continue in service the same number as does the act of Congress approved April 26, 1898, authorizing the increase of the Regular Army, provided for, viz, 62,579 men; but unfortunately there was a provision in that act which required the Army to be reduced to its former peace basis, which was entirely inadequate to the needs and interests of the Government.

I also recommend that Congress authorize an auxiliary force of native troops, to be officered principally by United States Army officers, for service in Porto Rico, Cuba, and the Philippine Islands, not to exceed two soldiers to every one thousand of the population of those islands. This would give the United States a most valuable auxiliary force. It would pacify the native elements of the islands, and would be in the interests of economy and good government. This force could be used in a way similar to the mounted police in Canada and the British forces in Egypt and India.

I recommend that Congress be requested to take immediate action upon this question of increasing the Army, as I consider it of vital importance. If the system I have suggested is adopted it would give us very nearly an available force of 100,000 men, and would enable the volunteers who enlisted for the war to be returned to their homes without delay.

I desire to make special mention of the officers on my staff, Brig. Gen. J. C. Gilmore, Col. Charles R. Greenleaf, and Lieut. Col. Marion P. Maus, who rendered very important services at Santiago de Cuba and in Porto Rico, being exposed at the former place to all the dangers of yellow-fever camps; and also Brig. Gen. Roy Stone, Col. James Allen, Lieut. Col. J. W. Clous, Lieut. Col. Arthur L. Wagner, Lieut. Col. William M. Black, Lieut. Col. Francis Michler, Lieut. Col. Andrew S. Rowan, Lieut. Col. Samuel Reber, Maj. W. H. Daly, Maj. John G. Black, and Capt. Henry W. Whitney, who rendered most efficient and valuable services in Porto Rico.

Accompanying this report are two maps of Cuba and one of Porto Rico.

Very respectfully, your obedient servant,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

REPORT OF MAJOR-GENERAL MERRITT, COMMANDING THE TROOPS IN THE PHILIPPINES.

STEAMSHIP CHINA,
At Sea, August 31, 1898.

SIR: I have the honor to submit the following report of the operations of the troops under my command in the expedition to the Philippine Islands, the campaign ending with the capture of Manila, August 13, 1898, and the subsequent occupation of the city:

In obedience to the order assigning me to the command of the Department of the Pacific, and the special instructions from the President, furnished me by the honorable Secretary of War, under date of May 28, 1898, I embarked with my staff from

San Francisco on the steamer *Newport* June 29 and arrived at Cavite, Manila Bay, July 25, 1898. The military situation in Manila Bay I found to be as follows:

The American fleet of war ships, commanded by Rear-Admiral George Dewey, was anchored in line off Cavite and just outside of the transports and supply vessels engaged in the military service. The distinguished admiral above mentioned was in full control of the navigation of the bay, and his vessels passed and repassed within range of the water batteries of the town of Manila without drawing the fire of the enemy.

Brig. Gen. Thomas M. Anderson, United States Volunteers, was in command of the military forces prior to my arrival, and from his report I learned that his headquarters were in Cavite and that the troops were disposed as follows:

The Second Oregon, detachments of California Heavy Artillery, Twenty-third Infantry, and Fourteenth Infantry occupied the town of Cavite; while Brig. Gen. F. V. Greene, United States Volunteers, was encamped with his brigade, consisting of the Eighteenth Infantry; Third United States Artillery; Company A, Engineer Battalion; First Colorado, First California, First Nebraska, Tenth Pennsylvania, and Batteries A and B of the Utah Artillery, along the line of the bay shore near the village of Paranaque, about 5 miles by water and 25 miles by the roads from Cavite.

Immediately after my arrival I visited General Greene's camp and made a reconnaissance of the position held by the Spanish; and also the opposing lines of the insurgent forces, hereafter to be described. I found General Greene's command encamped on a strip of sandy land running parallel to the shore of the bay and not far distant from the beach, but owing to the great difficulties of landing supplies, the greater portion of the force had shelter tents only and were suffering many discomforts, the camp being situated in a low, flat place, without shelter from the heat of the tropical sun or adequate protection during the terrific downpours of rain so frequent at this season. I was at once struck by the exemplary spirit of patient, even cheerful, endurance shown by the officers and men under such circumstances, and this feeling of admiration for the manner in which the American soldier, volunteer and regular alike, accept the necessary hardships of the work they have undertaken to do has grown and increased with every phase of the difficult and trying campaign which the troops of the Philippine expedition have brought to such a brilliant and successful conclusion.

I discovered during my visit to General Greene that the left or north flank of his brigade camp extended to a point on the "Calle Real" about 3,200 yards from the outer line of Spanish defenses of the city of Manila. This Spanish line began at the powder magazine, or old Fort San Antonio, within a hundred yards of the beach and just south of the Malate suburb of Manila, and stretched away to the Spanish left in more or less detached works, eastward, through swamps and rice fields, covering all the avenues of approach to the town and encircling the city completely.

The Filipinos, or insurgent forces at war with Spain, had, prior to the arrival of the American land forces, been waging a desultory warfare with the Spaniards for several months, and were at the time of my arrival in considerable force, variously estimated and never accurately ascertained, but probably not far from 12,000 men. These troops, well supplied with small arms, with plenty of ammunition and several

field guns, had obtained positions of investment opposite to the Spanish line of detached works throughout their entire extent; and on the particular road called the "Calle Real," passing along the front of General Greene's brigade camp and running through Malate to Manila, the insurgents had established an earthwork or trench within 800 yards of the powder-magazine fort. They also occupied as well the road to the right, leading from the village of Pasay, and the approach by the beach was also in their possession. This anomalous state of affairs, namely, having a line of quasi-hostile native troops between our forces and the Spanish position, was, of course, very objectionable, but it was difficult to deal with, owing to the peculiar condition of our relations with the insurgents, which may be briefly stated as follows:

Shortly after the naval battle of Manila Bay the principal leader of the insurgents, Gen. Emilio Aguinaldo, came to Cavite from Hongkong, and, with the consent of our naval authorities, began active work in raising troops and pushing the Spaniards in the direction of the city of Manila. Having met with some success, and the natives flocking to his assistance, he proclaimed an independent government of republican form, with himself as president, and at the time of my arrival in the islands the entire edifice of executive and legislative departments and subdivision of territory for administrative purposes had been accomplished, at least on paper, and the Filipinos held military possession of many points in the islands other than those in the vicinity of Manila.

As General Aguinaldo did not visit me on my arrival nor offer his services as a subordinate military leader, and as my instructions from the President fully contemplated the occupation of the islands by the American land forces, and stated that "the powers of the military occupant are absolute and supreme and immediately operate upon the political condition of the inhabitants," I did not consider it wise to hold any direct communication with the insurgent leader until I should be in possession of the city of Manila, especially as I would not until then be in a position to issue a proclamation and enforce my authority, in the event that his pretensions should clash with my designs.

For these reasons the preparations for the attack on the city were pressed and military operations conducted without reference to the situation of the insurgent forces. The wisdom of this course was subsequently fully established by the fact that when the troops of my command carried the Spanish intrenchments, extending from the sea to the Pasay road, on the extreme Spanish right, we were under no obligations, by prearranged plans of mutual attack, to turn to the right and clear the front still held against the insurgents, but were able to move forward at once and occupy the city and suburbs.

To return to the situation of General Greene's brigade as I found it on my arrival, it will be seen that the difficulty in gaining an avenue of approach to the Spanish line lay in the fact of my disinclination to ask General Aguinaldo to withdraw from the beach and the "Calle Real," so that Greene could move forward. This was overcome by instructions to General Greene to arrange, if possible, with the insurgent brigade commander in his immediate vicinity to move to the right and allow the American forces unobstructed control of the roads in their immediate front. No objection was made, and accordingly General Greene's brigade threw forward a

heavy outpost line on the "Calle Real" and the beach and constructed a trench, in which a portion of the guns of the Utah batteries was placed.

The Spanish, observing this activity on our part, made a very sharp attack with infantry and artillery on the night of July 31. The behavior of our troops during this night attack was all that could be desired, and I have, in cablegrams to the War Department, taken occasion to commend by name those who deserve special mention for good conduct in the affair. (For particulars of the action see the appended reports of the brigade commander.) Our position was extended and strengthened after this and resisted successfully repeated night attacks, our forces suffering, however, considerable loss in wounded and killed, while the losses of the enemy, owing to the darkness, could not be ascertained. (See appended reports.)

The strain of the night fighting and the heavy details for outpost duty made it imperative to reinforce General Greene's troops with General MacArthur's brigade, which had arrived in transports on the 31st of July. The difficulties of this operation can hardly be overestimated. The transports were at anchor off Cavite, 5 miles from a point on the beach where it was desired to disembark the men. Several squalls, accompanied by floods of rain, raged day after day, and the only way to get the troops and supplies ashore was to load them from the ship's side into native lighters (called "cascos") or small steamboats, move them to a point opposite the camp, and then disembark them through the surf in small boats, or by running the lighters head on to the beach. The landing was finally accomplished, after days of hard work and hardship; and I desire here to express again my admiration for the fortitude and cheerful willingness of the men of all commands engaged in this operation.

Upon the assembly of MacArthur's brigade in support of Greene's, I had about 8,500 men in position to attack, and I deemed the time had come for final action. During the time of the night attacks I had communicated my desire to Admiral Dewey that he would allow his ships to open fire on the right of the Spanish line of intrenchments, believing that such action would stop the night firing and loss of life, but the admiral had declined to order it unless we were in danger of losing our position by the assaults of the Spanish, for the reason that, in his opinion, it would precipitate a general engagement, for which he was not ready. Now, however, the brigade of General MacArthur was in position and the *Monterey* had arrived, and under date of August 6 Admiral Dewey agreed to my suggestion that we should send a joint letter to the Captain-General notifying him that he should remove from the city all noncombatants within forty-eight hours, and that operations against the defenses of Manila might begin at any time after the expiration of that period.

This letter was sent August 7 (see copy appended), and a reply was received the same date (copy hereto appended), to the effect that the Spanish were without places of refuge for the increased numbers of wounded, sick women, and children now lodged within the walls. On the 9th a formal joint demand for the surrender of the city was sent in. (See copy hereto appended.) This demand was based upon the hopelessness of the struggle on the part of the Spaniards, and that every consideration of humanity demanded that the city should not be subjected to bombardment under such circumstances. The Captain-General's reply, of same date (see copy attached), stated that the council of defense had declared that the demand could

not be granted; but the Captain-General offered to consult his Government if we would allow him the time strictly necessary for the communications by way of Hongkong.

This was declined on our part for the reason that it could, in the opinion of the admiral and myself, lead only to a continuance of the situation, with no immediate result favorable to us, and the necessity was apparent and very urgent that decisive action should be taken at once to compel the enemy to give up the town, in order to relieve our troops from the trenches and from the great exposure to unhealthy conditions which were unavoidable in a bivouac during the rainy season. The seacoast batteries in defense of Manila are so situated that it is impossible for ships to engage them without firing into the town, and as the bombardment of a city filled with women and children, sick and wounded, and containing a large amount of neutral property, could only be justified as a last resort, it was agreed between Admiral Dewey and myself that an attempt should be made to carry the extreme right of the Spanish line of intrenchments in front of the positions at that time occupied by our troops, which, with its flank on the seashore, was entirely open to the fire of the navy.

It was not my intention to press the assault at this point, in case the enemy should hold it in strong force, until after the navy had made practicable breaches in the works and shaken the troops holding them, which could not be done by the army alone, owing to the absence of siege guns. This is indicated fully in the orders and memorandum of attack hereto appended. It was believed, however, as most desirable, and in accordance with the principles of civilized warfare, that the attempt should be made to drive the enemy out of his intrenchments before resorting to the bombardment of the city.

By orders issued some time previously MacArthur's and Greene's brigades were organized as the Second Division of the Eighth Army Corps, Brig. Gen. Thomas M. Anderson commanding; and in anticipation of the attack General Anderson moved his headquarters from Cavite to the brigade camps and assumed direct command in the field. Copies of the written and verbal instructions, referred to above and appended hereto, were given to the division and brigade commanders on the 12th, and all the troops were in position on the 13th at an early hour in the morning.

About 9 a. m. on that day our fleet steamed forward from Cavite and before 10 a. m. opened a hot and accurate fire of heavy shells and rapid-fire projectiles on the sea flank of the Spanish intrenchments at the powder magazine fort, and at the same time the Utah batteries, in position in our trenches near the "Calle Real," began firing with great accuracy. At 10.25, on a prearranged signal from our trenches that it was believed our troops could advance, the navy ceased firing, and immediately a light line of skirmishers from the Colorado regiment of Greene's brigade passed over our trenches and deployed rapidly forward, another line from the same regiment from the left flank of our earthworks advancing swiftly up the beach in open order. Both these lines found the powder magazine fort and the trenches flanking it deserted, but as they passed over the Spanish works they were met by a sharp fire from a second line situated in the streets of Malate, by which a number of men were killed and wounded, among others the soldier who pulled down the Spanish colors still flying on the fort and raised our own. (See detailed report of brigade commander.)

The works of the second line soon gave way to the determined advance of Greene's troops, and that officer pushed his brigade rapidly through Malate and over the bridges to occupy Binondo and San Miguel, as contemplated in his instructions. In the meantime the brigade of General MacArthur, advancing simultaneously on the Pasay road, encountered a very sharp fire, coming from the blockhouses, trenches, and woods in his front, positions which it was very difficult to carry, owing to the swampy condition of the ground on both sides of the roads and the heavy undergrowth concealing the enemy. With much gallantry and excellent judgment on the part of the brigade commander and the troops engaged these difficulties were overcome with a minimum loss (see report of brigade commander appended), and MacArthur advanced and held the bridges and the town of Malate, as was contemplated in his instructions.

The city of Manila was now in our possession, excepting the walled town, but shortly after the entry of our troops into Malate a white flag was displayed on the walls, whereupon Lieut. Col. C. A. Whittier, United States Volunteers, of my staff, and Lieutenant Brumby, United States Navy, representing Admiral Dewey, were sent ashore to communicate with the Captain-General. I soon personally followed these officers into the town, going at once to the palace of the Governor-General, and there, after a conversation with the Spanish authorities, a preliminary agreement of the terms of capitulation was signed by the Captain-General and myself. This agreement was subsequently incorporated into the formal terms of capitulation, as arranged by the officers representing the two forces, a copy of which is hereto appended and marked.

Immediately after the surrender the Spanish colors on the sea front were hauled down and the American flag displayed and saluted by the guns of the Navy. The Second Oregon Regiment, which had proceeded by sea from Cavite, was disembarked and entered the walled town as a provost guard, and the colonel was directed to receive the Spanish arms and deposit them in places of security. The town was filled with the troops of the enemy driven in from the intrenchments, regiments formed and standing in line in the streets, but the work of disarming proceeded quietly and nothing unpleasant occurred.

In leaving the subject of the operations of the 13th, I desire here to record my appreciation of the admirable manner in which the orders for attack and the plan for occupation of the city were carried out by the troops exactly as contemplated. I submit that for troops to enter under fire a town covering a wide area, to rapidly deploy and guard all principal points in the extensive suburbs, to keep out the insurgent forces pressing for admission, to quietly disarm an army of Spaniards more than equal in numbers to the American troops, and finally by all this to prevent entirely all rapine, pillage, and disorder, and gain entire and complete possession of a city of 300,000 people filled with natives hostile to the European interests, and stirred up by the knowledge that their own people were fighting in the outside trenches, was an act which only the law-abiding, temperate, resolute American soldier, well and skillfully handled by his regimental and brigade commanders, could accomplish.

Prior to the action on the 13th, General Order No. 3, hereto appended, was issued, and a copy was sent to Aguinaldo's representative as an indication of the conduct that would be expected of them in the event that any bands of the insurgents should

effect an entrance to the city. After the action, General Order No. 6, here appended, was published to the troops as a sincere expression of my appreciation of their conduct.

The amount of public funds and the numbers of the prisoners of war and small arms taken have been reported in detail by cable. It will be observed that the trophies of Manila were nearly \$900,000, 13,000 prisoners, and 22,000 arms.

Immediately after the surrender my headquarters were established in the ayuntamiento, or city office of the Governor-General, where steps were at once inaugurated to set up the government of military occupancy. A proclamation was issued and published in all the newspapers of the city in English, Spanish, and native dialect, and one of my two very efficient brigade commanders, General MacArthur was appointed provost-marshal-general and civil governor of the town, while the other, General Greene, was selected for the duties of intendente general de hacienda or director of financial affairs, the collectors of customs and internal revenue reporting to him. Lieutenant-Colonel Whittier, United States Volunteers, of my staff, an efficient business man of long experience, was appointed collector of the customs and a bonded officer, Major Whipple, of the pay department, was announced a custodian of the public funds, to whom all Spanish money derived from any source was to be transmitted for safe-keeping and disbursement under orders.

On the 16th a cablegram containing the text of the President's proclamation directing a cessation of hostilities was received by me, and at the same time an order to make the fact known to the Spanish authorities, which was done at once. This resulted in a formal protest from the Governor-General in regard to the transfer of public funds then taking place, on the ground that the proclamation was dated prior to the surrender. To this I replied that the status quo in which we were left with the cessation of hostilities was that existing at the time of the receipt by me of the official notice, and that I must insist upon the delivery of the funds. The delivery was made under protest.

After the issue of my proclamation and the establishment of my office as military governor, I had direct written communication with General Aguinaldo on several occasions. He recognized my authority as military governor of the town of Manila and suburbs, and made professions of his willingness to withdraw his troops to a line which I might indicate, but at the same time asking certain favors for himself. The matters in this connection had not been settled at the date of my departure. Doubtless much dissatisfaction is felt by the rank and file of the insurgents that they have not been permitted to enjoy the occupancy of Manila, and there is some ground for trouble with them owing to that fact; but, notwithstanding many rumors to the contrary, I am of the opinion that the leaders will be able to prevent serious disturbances, as they are sufficiently intelligent and educated to know that to antagonize the United States would be to destroy their only chance of future political improvement.

On the 28th instant I received a cablegram directing me to transfer my command to Major-General Otis, United States Volunteers, and to proceed to Paris, France, for conference with the peace commissioners. I embarked on the steamer *China* on the 30th in obedience to these instructions.

In view of my short occupancy of the office of military governor (sixteen days),

I shall leave to my successor to report in detail and at length on the many important matters of administration and questions affecting trade and commerce which it was not difficult to see would soon arise.

I may add, however, that great changes for the better have taken place in Manila since the occupancy of the city by the American troops. The streets have been cleaned under the management of General MacArthur, and the police, under Colonel Reeve, Thirteenth Minnesota, were most proficient in preserving order. A stranger to the city might easily imagine that the American forces had been in control for months rather than days.

In concluding this report I wish formally to declare my indebtedness for the success of the expedition to the brigade commanders, the division commander, the members of my staff, and my personal aids. While we were still in San Francisco these latter were sent to me to report to the commanders of the different organizations in camp, and were busy assisting in instructing the newly arrived troops. That they did good service in this direction I have the assurance of all concerned.

Brig. Gen. R. P. Hughes, my inspector-general at San Francisco, was especially noticeable in accomplishing the instruction of the green troops that came to the city, many of them without arms, clothing, or equipment of any kind. His services will undoubtedly be duly recognized by Major-General Otis, with whom I left him to continue the good work.

I desire especially to express my acknowledgments to Brigadier-General Babcock, my adjutant-general and chief of staff, for his most valuable services from the inception of the campaign in San Francisco to the close of the work at the present time. This officer is too well known to require special mention of his services in any one direction. He was my right arm, not only in the office but in the field, and much of the success that has attended the expedition is due to his individual efforts.

I desire especially to mention Major McClure and Major Whipple, of the Pay Department, who volunteered their services after they had completed their legitimate duties, and performed excellent work whenever called upon. Major McClure was especially important in his services immediately after the surrender, taking long rides under my orders to the Spanish lines, and bearing instructions to them which resulted in effecting their withdrawal in such manner as to prevent the incursion of the insurgents in the northern portions of the city. Other officers have been named in my special reports and have been recommended for brevets and promotion.

I especially call attention to the services of Captain Mott, as mentioned in the report of Brigadier-General Greene. He was cheerful, willing, intelligent, and energetic in the discharge of the multifarious duties imposed upon him in connection with our troops and trenches during the rainy season, and in the final action showed those rare characteristics which stamp him as a very superior soldier.

It is possible, in the hurry attending the making up of this report, that some matters to which I would call attention have been neglected. If this proves to be true I desire to retain the right to make ample amendment in future reports.

I desire, in conclusion, to express my sincere thanks on behalf of my command and myself for the most welcome cablegram of congratulation from His Excellency the

President of the United States, which was immediately published to the troops in General Order No. 11, hereto appended.

Very respectfully,

WESLEY MERRITT,
Major-General, U. S. A.

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, Philippine Islands, August 7, 1898.

The General in Chief Commanding Spanish forces in Manila.

SIR: We have the honor to notify your excellency that operations of the land and naval forces of the United States against the defenses of Manila may begin at any time after the expiration of forty-eight hours from the hour of receipt by you of this communication, or sooner if made necessary by an attack on your part.

This notice is given in order to afford you an opportunity to remove all noncombatants from the city.

Very respectfully,

WESLEY MERRITT,
*Major-General, United States Army,
Commanding land forces of the United States.*

GEORGE DEWEY,
*Rear-Admiral, United States Navy,
Commanding United States naval force on Asiatic station.*

[Translation.]

MANILA, August 7, 1898.

The Governor-General and Captain-General of the Philippines to the Major-General of the Army and the Rear-Admiral of the Navy, commanding, respectively, the military and naval forces of the United States.

GENTLEMEN: I have the honor to inform your excellencies that at half past 12 to-day I received the notice with which you favor me, that after forty-eight hours have elapsed you may begin operations against this fortified city, or at an earlier hour if the forces under your command are attacked by mine.

As your notice is sent for the purpose of providing for the safety of noncombatants, I give thanks to your excellencies for the humane sentiments you have shown, and state that, finding myself surrounded by insurrectionary forces, I am without places of refuge for the increased numbers of wounded, sick, women, and children who are now lodged within the walls.

Very respectfully, and kissing the hands of your excellencies,

FERMIN JAUDENES,
Governor-General and Captain-General of the Philippines.

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, Philippine Islands, August 9, 1898.

The Governor-General and Captain-General of the Philippines.

SIR: The inevitable suffering in store for the wounded, sick, women, and children, in the event that it becomes our duty to reduce the defenses of the walled town in which they are gathered, will, we feel assured, appeal successfully to the sympathies of a general capable of making the determined and prolonged resistance, which your excellency has exhibited after the loss of your naval forces and without hope of succor.

We therefore submit, without prejudice to the high sentiments of honor and duty which your excellency entertains, that, surrounded on every side as you are by a constantly increasing force, with a powerful fleet in your front, and deprived of all prospect of reenforcement and assistance, a most useless sacrifice of life would result in the event of an attack, and therefore every consideration of humanity makes it imperative that you should not subject your city to the horrors of a bombardment. Accordingly, we demand the surrender of the city of Manila and the Spanish forces under your command.

Very respectfully,

W. MERRITT,
*Major-General, United States Army,
Commanding Land Forces of the United States.*

GEORGE DEWEY,
*Rear-Admiral, United States Navy,
Commanding United States Naval Force on Asiatic Station.*

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, August 10, 1898.

The Governor-General and Captain-General of the Philippine Islands.

SIR: We have the honor to acknowledge the communication of your excellency of the 8th instant, in which you suggest your desire to consult your Government in regard to the exceptional circumstances in your city, provided the time to do so can be granted by us.

In reply we respectfully inform your excellency that we decline to grant the time requested.

Very respectfully,

WESLEY MERRITT,
Major-General, U. S. A., Commanding U. S. Land Forces.
GEORGE DEWEY,
Rear-Admiral, U. S. Navy,
Commanding U. S. Naval Forces, Asiatic Station

[Translation.]

MANILA, August 9, 1898.

The Governor-General and Captain-General of the Philippines to the Major-General of the Army and the Rear-Admiral of the Navy, commanding, respectively, the Military and Naval Forces of the United States.

GENTLEMEN: Having received an intimation from your excellencies that, in obedience to sentiments of humanity to which you appeal and which I share, I should surrender this city and the forces under my orders, I have assembled the council of defense, which declares that your request can not be granted; but taking account of the most exceptional circumstances existing in this city, which your excellencies recite and which I unfortunately have to admit, I would consult my Government, if your excellencies will grant the time strictly necessary for this communication, by way of Hongkong.

Very respectfully,

FERMIN JAUDENES,
Governor-General and Captain-General of the Philippines.

The undersigned, having been appointed a commission to determine the details of the capitulation of the city and defenses of Manila and its suburbs and the Spanish forces stationed therein, in accordance with the agreement entered into the previous day by Maj. Gen. Wesley Merritt, United States Army, American commander in chief in the Philippines, and His Excellency Don Fermin Jaudenes, acting general in chief of the Spanish army in the Philippines, have agreed upon the following:

1. The Spanish troops, European and native, capitulate with the city and its defenses, with all the honors of war, depositing their arms in the places designated by the authorities of the United States, and remaining in the quarters designated and under the orders of their officers, and subject to the control of the aforesaid United States authorities, until the conclusion of a treaty of peace between the two belligerent nations.

All persons included in the capitulation remain at liberty, the officers remaining in their respective homes, which shall be respected as long as they observe the regulations prescribed for their government and the laws in force.

2. Officers shall retain their side arms, horses, and private property.

3. All public horses and public property of all kinds shall be turned over to staff officers designated by the United States.

4. Complete returns in duplicate of men by organizations and full lists of public property and stores shall be rendered to the United States within ten days from this date.

5. All questions relating to the repatriation of officers and men of the Spanish forces and of their families, and of the expenses which said repatriation may occasion, shall be referred to the Government of the United States at Washington. Spanish families may leave Manila at any time convenient to them.

The return of the arms surrendered by the Spanish forces shall take place when they evacuate the city or when the American Army evacuates.

6. Officers and men included in the capitulation shall be supplied by the United States, according to their rank, with rations and necessary aid as though they were prisoners of war, until the conclusion of a treaty of peace between the United States and Spain.

All the funds in the Spanish treasury and all other public funds shall be turned over to the authorities of the United States.

7. This city, its inhabitants, its churches and religious worship, its educational establishments, and its private property of all descriptions are placed under the special safeguard of the faith and honor of the American Army.

F. V. GREENE,
Brigadier-General of Volunteers, United States Army.

B. P. LAMBERTON,
Captain, United States Navy.

CHARLES A. WHITTIER,
Lieutenant-Colonel and Inspector-General.

E. H. CROWDER,
Lieutenant-Colonel and Judge-Advocate.

NICHOLAS DE LA PETRA,
Auditor General Ezomo.

CARLOS,
Coronel de Ingenieros.

JOSE,
Coronel de Estado Major.

HEADQUARTERS DEPARTMENT OF THE PACIFIC,
August 14, 1898.

To the people of the Philippines :

I. War has existed between the United States and Spain since April 21 of this year. Since that date you have witnessed the destruction by an American fleet of the Spanish naval power in these islands, the fall of the principal city, Manila, and its defenses, and the surrender of the Spanish army of occupation to the forces of the United States.

II. The commander of the United States forces now in possession has instructions from his Government to assure the people that he has not come to wage war upon them, nor upon any part or faction among them, but to protect them in their homes, in their employments, and in their personal and religious rights. All persons who, by active aid or honest submission, cooperate with the United States in its efforts to give effect to this beneficent purpose will receive the reward of its support and protection.

III. The government established among you by the United States is a government of military occupation; and for the present it is ordered that the municipal laws, such as affect private rights of persons and property, regulate local institutions, and provide for the punishment of crime shall be considered as continuing in force, so far as compatible with the purposes of military government, and that they be administered through the ordinary tribunals substantially as before occupation, but by officials appointed by the Government of occupation.

IV. A provost-marshal-general will be appointed for the city of Manila and its outlying districts. This territory will be divided into subdistricts, and there will be assigned to each a deputy provost-marshal.

The duties of the provost-marshal-general and his deputies will be set forth in detail in future orders. In a general way they are charged with the duty of making arrests of military as well as civil offenders, sending such of the former class as are triable by courts-martial to their proper commands, with statements of their offenses and names of witnesses, and detaining in custody all other offenders for trial by military commission, provost courts, or native criminal courts, in accordance with law and the instructions hereafter to be issued.

V. The port of Manila, and all other ports and places in the Philippines which may be in the actual possession of our land and naval forces will be open, while our military occupation may continue, to the commerce of all neutral nations as well as our own, in articles not contraband of war, and upon payment of the prescribed rates of duty which may be in force at the time of the importation.

VI. All churches and places devoted to religious worship and to the arts and sciences, all educational institutions, libraries, scientific collections, and museums are, so far as possible, to be protected; and all destruction or intentional defacement of such places or property, of historical monuments, archives, or works of science and art, is prohibited, save when required by urgent military necessity. Severe punishment will be meted out for all violations of this regulation.

The custodians of all property of the character mentioned in this section will make prompt returns thereof to these headquarters, stating character and location, and embodying such recommendations as they may think proper for the full protection of the properties under their care and custody, that proper orders may issue enjoining the cooperation of both military and civil authorities in securing such protection.

VII. The commanding general, in announcing the establishment of military government and in entering upon his duty as military governor in pursuance of his appointment as such by the Government of the United States, desires to assure the people that so long as they preserve the peace and perform their duties toward the representatives of the United States they will not be disturbed in their persons and property, except in so far as may be found necessary for the good of the service of the United States and the benefit of the people of the Philippines.

WESLEY MERRITT,
Major-General, United States Army, Commanding.

REPORT OF MAJOR-GENERAL SHAFTER, COMMANDING THE TROOPS IN CUBA.

WASHINGTON, D. C., *September 13, 1898.*

ADJUTANT-GENERAL OF THE ARMY,

Washington, D. C.

SIR: I have the honor to submit the following report of the campaign which terminated in the fall of Santiago de Cuba, and the adjacent territory, and the establishment of the military government therein:

The expedition was undertaken in compliance with telegraphic instructions of May 30, 1898, from Headquarters of the Army, in which it was stated "Admiral Schley reports that two cruisers and two torpedo boats have been seen in the harbor of Santiago. Go with your force to capture garrison at Santiago, and assist in capturing harbor and fleet."

On this date there were a large number of transports in Port Tampa Bay, which had been collected for the purpose of an expedition which it had been previously contemplated I should command, and for such other emergencies as might arise. Orders were immediately given for loading aboard those transports the necessary subsistence and quartermaster's supplies, and for the embarkation of the authorized number of troops and their material. General Orders, No. 5, from these headquarters, indicate the organizations it was at first proposed to take. The order is as follows:

GENERAL ORDERS, }
No. 5. }

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., May 31, 1898.

The following troops will hold themselves in readiness to move immediately on board transports upon notification from these headquarters:

1. The Fifth Army Corps.
- 2 The Battalion of Engineers.
3. The detachment of the Signal Corps.
4. Five squadrons of cavalry, to be selected by the commanding general of the cavalry division, in accordance with instructions previously given.
5. Four batteries of light artillery, to be commanded by a major to be selected by the commanding officer of the Light Artillery Brigade.
6. Two batteries of heavy artillery, to be selected by the commanding officer of the siege artillery battalion, with eight siege guns and eight field mortars.
7. The Battalion of Engineers, the Infantry and Cavalry, will be supplied with 500 rounds of ammunition per man.
8. All troops will carry, in addition to the fourteen days' field rations now on hand, ten days' travel rations.
9. The minimum allowance of tentage and baggage, as prescribed in General Orders 54, Adjutant-General's Office, current series, will be taken.
10. In addition to the rations specified in paragraph 8 of this order, the Chief Commissary will provide sixty days' field rations for the entire command.
11. All recruits and extra baggage, the latter to be stored, carefully piled and covered, will be left in camp, in charge of a commissioned officer, to be selected by the regimental commander. Where there are no recruits available, the necessary guard only will be left.

12. Travel rations will be drawn, at once, by the several commands, as indicated in paragraph 8.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

This order was afterwards changed to include 12 squadrons of cavalry, all of which were dismounted, because of lack of transportation for the animals, and because it was believed from the best sources of information obtainable that mounted cavalry could not operate efficiently in the neighborhood of Santiago. This was found subsequently to be correct.

The facilities at Tampa, and Port Tampa, for embarking the troops and the large amount of supplies required were inadequate, and with the utmost effort it was not possible to accomplish this work as quickly as I hoped and desired.

On the evening of June 7, I received orders to sail without delay, but not with less than 10,000 men.

The orders referred to caused one division composed of volunteer troops—commanded by Brigadier-General Snyder, and which it had been intended to include in my command—to be left behind. I was joined, however, by Brigadier-General Bates, who had already arrived on transports from Mobile, Ala., with the Third and Twentieth Infantry, and one squadron of the Second Cavalry, with their horses—the latter being the only mounted troops in my command.

After some of the transports had already reached the lower bay, telegraphic instructions were received from the Honorable Secretary of War directing that the sailing of the expedition be delayed waiting further orders. This delay was occasioned by the Navy reporting that a Spanish war vessel had been sighted in the Nicholas Channel. The ships in the lower bay were immediately recalled. On the next day, in compliance with instructions from the Adjutant-General of the Army, the necessary steps were taken to increase the command to the full capacity of the transports, and the expedition sailed on June 14 with 815 officers and 16,072 enlisted men.

The passage to Santiago was generally smooth and uneventful. The health of the command remained remarkably good, notwithstanding the fact that the conveniences on many of the transports, in the nature of sleeping accommodations, space for exercise, closet accommodations, etc., were not all that could have been desired. While commenting upon this subject, it is appropriate to add that the opinion was general throughout the army that the travel ration should include tomatoes, beginning with the first day, and that a small quantity of canned fruit would prove to be a most welcome addition while traveling at sea in the tropics; if the future policy of our Government requires much transportation for the military forces by sea, definite arrangements should be determined upon to provide the necessary hammock accommodations for sleeping. Hammocks interfere immeasurably less than bunks with the proper ventilation of the ships, and during the day can be easily removed, thus greatly increasing space for exercise; moreover, they greatly diminish the danger of fire.

While passing along the north coast of Cuba, one of the two barges we had in tow broke away during the night, and was not recovered. This loss proved to be very serious, for it delayed and embarrassed the disembarkation of the army. On the morning of June 20, we arrived off Guantanamo Bay, and about noon reached the

vicinity of Santiago, where Admiral Sampson came on board my headquarter transport. It was arranged between us to visit in the afternoon the Cuban general, Garcia, at Aserraderos, about 18 miles to the west of the Morro. During the interview General Garcia offered the services of his troops, comprising about 4,000 men, in the vicinity of Aserraderos, and about 500 under General Castillo at the little town of Cujababo, a few miles east of Daiquiri. I accepted his offer, impressing it upon him that I could exercise no military control over him except such as he would concede, and as long as he served under me I would furnish him rations and ammunition.

Ever since the receipt of my orders I had made a study of the terrain surrounding Santiago, gathering information mainly from former residents of the city, several of whom were on the transports with me. At this interview all the possible points of attack were for the last time carefully weighed, and then, for the information and guidance of Admiral Sampson and General Garcia, I outlined the plan of campaign, which was as follows:

With the assistance of the small boats of the navy, the disembarkation was to commence on the morning of the 22d at Daiquiri. On the 21st 500 insurgent troops were to be transferred from Aserraderos to Cujababo, increasing the force already there to 1,000 men. This force under General Castillo was to attack the Spanish force at Daiquiri in the rear at the time of disembarkation. This movement was successfully made. To mislead the enemy as to the real point of our intended landing, I requested General Garcia to send a small force (about 500 men), under General Rabi, to attack the little town of Cabanas, situated on the coast a few miles to the west of the entrance to Santiago Harbor, and where it was reported the enemy had several hundred men intrenched, and from which a trail leads around the west side of the bay to Santiago.

I also requested Admiral Sampson to send several of his war ships, with a number of my transports, opposite this town for the purpose of making a show of disembarking there. In addition I asked the admiral to cause a bombardment to be made at Cabanas, and also at the forts around the Morro, and at the towns of Aguadores, Siboney, and Daiquiri. The troops under General Garcia remaining at Aserraderos were to be transferred to Daiquiri or Siboney, on the 24th. This was successfully accomplished at Siboney.

These movements committed me to approaching Santiago from the east over a narrow road, at first in some places not better than a trail, running from Daiquiri through Siboney and Sevilla, and making attack from that quarter. This, in my judgment, was the only feasible plan, and subsequent information and results confirmed my judgment.

On the morning of the 22d the army commenced to disembark at Daiquiri. The following general order indicates the manner in which the troops left the transports, and the amount of supplies carried immediately with them:

GENERAL ORDERS, }
No. 18. }

HEADQUARTERS FIFTH ARMY CORPS,
ON BOARD S. S. SEGURANCA, AT SEA, *June 20, 1898.*

EXTRACT.

1. Under instructions to be communicated to the proper commanders, troops will disembark in the following order:

First. The Second Division, Fifth Corps (Lawton's). The Gatling gun detachment will accompany this division.

Second. General Bates's brigade. This brigade will form as a reserve to the Second Division, Fifth Corps.

Third. The dismounted cavalry division (Wheeler's).

Fourth. The First Division, Fifth Corps (Kent's).

Fifth. The squadron of the Second Cavalry (Rafferty's).

Sixth. If the enemy in force vigorously resist the landing, the light artillery, or part of it, will be disembarked by the battalion commander and brought to the assistance of the troops engaged. If no serious opposition be offered, this artillery will be unloaded after the mounted squadron.

2. All troops will carry on the person the blanket roll (with shelter tent and poncho), three days' field rations (with coffee ground), canteens filled, and 100 rounds of ammunition per man. Additional ammunition, already issued to the troops, tentage, baggage, and company cooking utensils, will be left under charge of the regimental quartermaster, with one noncommissioned officer and two privates from each company.

3. All persons not immediately on duty with, and constituting a part of, the organizations mentioned in the foregoing paragraphs, will remain aboard ship until the landing be accomplished, and until notified they can land.

4. The chief quartermaster of the expedition will control all small boats, and will distribute them to the best advantage to disembark the troops in the order indicated in paragraph 1.

5. The ordnance officer, Second Lieutenant Brooke, Fourth Infantry, will put on shore, at once, 100 rounds of ammunition per man, and have it ready for distribution on the firing line.

6. The commanding general wishes to impress officers and men with the crushing effect a well-directed fire will have upon the Spanish troops. All officers concerned will rigidly enforce fire discipline, and will caution their men to fire only when they can see the enemy.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

The small boats belonging to the Navy and to the transports, together with a number of steam launches furnished by the Navy, were brought alongside and loaded with troops as prescribed in the order just quoted. When General Lawton's division was fairly loaded in the small boats the latter were towed in long lines by the steam launches toward the shore. The sea was somewhat rough, but by the exercise of caution and good judgment the beach was reached and the troops disembarked satisfactorily. As a precaution against a possible attack upon the part of any Spaniards who might have been hidden in the adjacent blockhouses and woods, the Navy opened a furious cannonade on these places while the troops were moving toward the shore. It was learned afterwards that the Spanish garrison had retired in the direction of Siboney soon after daylight.

By night about 6,000 troops were on shore. General Lawton was ordered to push down a strong force to seize and hold Siboney.

On the 23d the disembarkation was continued and about 6,000 more men landed. Early on this date General Lawton's advance reached Siboney, the Spanish garrison of about 600 men retiring as he came up, and offering no opposition except a few scattering shots at long range. Some of the Cuban troops pursued the retreating Spaniards and skirmished with them. During the afternoon of this date the disembarkation of Kent's division was commenced at Siboney, which enabled me to establish a base 8 miles nearer Santiago, and to continue the unloading of troops and supplies at both points.

The disembarkation was continued throughout the night of the 23d and 24th, and by the evening of the 24th the disembarkation of my command was practically completed.

The orders for June 24 contemplated General Lawton's division taking a strong defensive position a short distance from Siboney, on the road to Santiago; Kent's division was to be held near Siboney, where he disembarked; Bates's brigade was to take position in support of Lawton, while Wheeler's division was to be somewhat to the rear on the road from Siboney to Daiquiri. It was intended to maintain this situation until the troops and transportation were disembarked and a reasonable quantity of necessary supplies landed. General Young's brigade, however, passed beyond Lawton on the night of the 23d-24th, thus taking the advance, and on the morning of the latter date became engaged with a Spanish force intrenched in a strong position at La Guasima, a point on the Santiago road about three miles from Siboney. General Young's force consisted of one squadron of the First Cavalry, one of the Tenth Cavalry, and two of the First U. S. Volunteer Cavalry, in all 964 officers and men. The enemy made an obstinate resistance, but were driven from the field with considerable loss. Our own loss was 1 officer and 15 men killed; 6 officers and 46 men wounded. The reported losses of the Spaniards were 9 killed and 27 wounded. The engagement had an inspiring effect upon our men, and doubtless correspondingly depressed the enemy, as it was now plainly demonstrated to them that they had a foe to meet who would advance upon them under a heavy fire delivered from intrenchments. General Wheeler, division commander, was present during the engagement, and reports our troops, officers and men, fought with the greatest gallantry. His report attached marked A. This engagement gave us a well-watered country farther to the front, on which to encamp our troops.

My efforts to unload transportation and subsistence stores, so that we might have several days' rations on shore, were continued during the remainder of the month. In this work I was ably seconded by Lient. Col. Charles F. Humphrey, deputy quartermaster-general, United States Army, chief quartermaster, and Col. John F. Weston, assistant commissary-general of subsistence, chief commissary, but notwithstanding the utmost efforts it was difficult to land supplies in excess of those required daily to feed the men and animals, and the loss of the scow, mentioned as having broken away during the voyage, as well as the loss at sea of lighters sent by Quartermaster's Department, was greatly felt. Indeed, the lack of steam launches, lighters, scows, and wharves can only be appreciated by those who were on the ground directing the disembarkation and landing of supplies. It was not until nearly two weeks after the army landed that it was possible to place on shore three days' supplies in excess of those required for the daily consumption.

After the engagement at La Guasima, and before the end of the month, the army, including General Garcia's command, which had been brought on transports to Siboney from Aserraderos, was mostly concentrated at Sevilla, with the exception of the necessary detachments at Daiquiri and Siboney.

On June 30 I reconnoitered the country about Santiago and made my plan of attack. From a high hill, from which the city was in plain view, I could see the San Juan Hill and the country about El Caney. The roads were very poor, and indeed little better than bridle paths, until the San Juan River and El Caney were reached.

The position of El Caney, to the northeast of Santiago, was of great importance to the enemy, as holding the Guantanamo road as well as furnishing shelter for a

strong outpost that might be used to assail the right flank and rear of any force operating against San Juan Hill.

In view of this, I decided to begin the attack next day at El Caney, with one division, while sending two divisions on the direct road to Santiago, passing by El Pozo House, and, as a diversion, to direct a small force against Aguadores, from Siboney along the railroad by the sea, with a view of attracting the attention of the Spaniards in the latter direction, and of preventing them from attacking our left flank.

During the afternoon I assembled the division commanders, and explained to them my general plan of battle. Lawton's division, assisted by Capron's light battery, was ordered to move out during the afternoon toward El Caney, to begin the attack there early the next morning. After carrying El Caney, Lawton was to move by the Caney road toward Santiago, and take position on the right of the line. Wheeler's division of dismounted cavalry, and Kent's division of infantry, were directed on the Santiago road, the head of the column resting near El Pozo, toward which heights Grimes's battery moved on the afternoon of the 30th, with orders to take position thereon early the next morning, and at the proper time prepare the way for the advance of Wheeler and Kent on San Juan Hill. The attack at this point was to be delayed until Lawton's guns were heard at El Caney and his infantry fire showed he had become well engaged.

The remainder of the afternoon and night was devoted to cutting out and repairing the roads and to other necessary preparations for battle. These preparations were far from what I desired them to be, but we were in a sickly climate; our supplies had to be brought forward by a narrow wagon road which the rains might at any time render impassable; fear was entertained that a storm might drive the vessels containing our stores to sea, thus separating us from our base of supplies, and, lastly, it was reported that General Pando, with 8,000 reinforcements for the enemy, was en route from Manzanillo, and might be expected in a few days. Under those conditions I determined to give battle without delay.

Early on the morning of July 1 Lawton was in position around El Caney, Chaffee's brigade on the right, across the Guantanamo road, Miles's brigade in the center, and Ludlow's on the left. The duty of cutting off the enemy's retreat, along the Santiago road, was assigned to the latter brigade. The artillery opened on the town at 6.15 a. m. The battle here soon became general, and was hotly contested. The enemy's position was naturally strong, and was rendered more so by blockhouses, a stone fort, and intrenchments out in solid rock, and the loopholing of a solidly built stone church. The opposition offered by the enemy was greater than had been anticipated, and prevented Lawton from joining the right of the main line during the day as had been intended. After the battle had continued for some time, Bates's brigade of two regiments reached my headquarters from Siboney. I directed him to move near El Caney to give assistance if necessary. He did so and was put in position between Miles and Chaffee. The battle continued with varying intensity during most of the day, and until the place was carried by assault about 4.30 p. m. As the Spaniards endeavored to retreat along the Santiago road, Ludlow's position enabled him to do very effective work, and to practically cut off all retreat in that direction.

After the battle at El Caney was well opened, and the sound of the small arms fire caused us to believe that Lawton was driving the enemy before him, I directed Grimes's battery to open fire from the heights of El Pozo on the San Juan blockhouse, which could be seen situated in the enemy's intrenchments extending along the crest of San Juan hill. This fire was effective, and the enemy could be seen running away from the vicinity of the blockhouse. The artillery fire from El Pozo was soon returned by the enemy's artillery. They evidently had the range of this hill, and their first shells killed and wounded several men. As the Spaniards used smokeless powder it was very difficult to locate the positions of their pieces, while, on the contrary, the smoke caused by our black powder plainly indicated the position of our battery.

At this time the cavalry division, under General Sumner, which was lying concealed in the general vicinity of El Pozo House, was ordered forward, with directions to cross the San Juan River and deploy to the right on the Santiago side, while Kent's division was to follow closely in its rear and deploy to the left.

These troops moved forward in compliance with orders, but the road was so narrow as to render it impracticable to retain the column of fours formation at all points, while the undergrowth on either side was so dense as to preclude the possibility of deploying skirmishers. It naturally resulted that the progress made was slow, and the long-range rifles of the enemy's infantry killed and wounded a number of our men while marching along this road, and before there was any opportunity to return this fire. At this time Generals Kent and Sumner were ordered to push forward with all possible haste, and place their troops in position to engage the enemy. General Kent, with this end in view, forced the head of his column alongside of the cavalry column as far as the narrow trail permitted, and thus hurried his arrival at the San Juan, and the formation beyond that stream. A few hundred yards before reaching the San Juan, the road forks, a fact that was discovered by Lieutenant-Colonel Derby of my staff, who had approached well to the front in a war balloon. This information he furnished to the troops, resulting in Sumner moving on the right-hand road, while Kent was enabled to utilize the road to the left.

General Wheeler, the permanent commander of the cavalry division, who had been ill, came forward during the morning, and later returned to duty, and rendered most gallant and efficient service during the remainder of the day.

After crossing the stream, the cavalry moved to the right with a view of connecting with Lawton's left when he should come up, and with their left resting near the Santiago road.

In the meanwhile Kent's division, with the exception of two regiments of Hawkins's brigade, being thus uncovered, moved rapidly to the front from the forks previously mentioned in the road, utilizing both trails, but more especially the one to the left, and crossing the creek, formed for attack in the front of San Juan Hill. During this formation the Third Brigade suffered severely. While personally superintending this movement, its gallant commander, Colonel Wikoff, was killed. The command of the brigade then devolved upon Lieutenant-Colonel Worth, Thirtieth Infantry, who was soon severely wounded, and next upon Lieutenant-Colonel Lissum, Twenty-fourth Infantry, who, five minutes later, also fell under

the terrible fire of the enemy, and the command of the brigade then devolved upon Lieutenant-Colonel Ewers, Ninth Infantry.

While the formation just described was taking place, General Kent took measures to hurry forward his rear brigade. The Tenth and Second Infantry were ordered to follow Wikoff's brigade, while the Twenty-first was sent on the right-hand road to support the First Brigade, under General Hawkins, who had crossed the stream and formed on the right of the division. The Second and Tenth Infantry, Col. E. P. Pearson commanding, moved forward in good order on the left of the division, passed over a green knoll, and drove the enemy back toward his trenches.

After completing their formation, under a destructive fire, and advancing a short distance, both divisions found in their front a wide bottom in which had been placed a barbed-wire entanglement, and beyond which there was a high hill, along the crest of which the enemy was strongly posted. Nothing daunted, these gallant men pushed on to drive the enemy from his chosen position, both divisions losing heavily. In this assault Colonel Hamilton, Lieutenants Smith and Shipp were killed, and Colonel Carroll, Lieutenants Thayer and Myer, all in the cavalry, were wounded.

Great credit is due to Brig. Gen. H. S. Hawkins, who, placing himself between his regiments, urged them on by voice and bugle calls to the attack so brilliantly executed.

In this fierce encounter, words fail to do justice to the gallant regimental commanders and their heroic men, for while the generals indicated the formations and the points of attack, it was, after all, the intrepid bravery of the subordinate officers and men that planted our colors on the crest of San Juan Hill, and drove the enemy from his trenches and blockhouses, thus gaining a position which sealed the fate of Santiago.

In the action on this part of the field, most efficient service was rendered by Lieut. John H. Parker, Thirteenth Infantry, and the Gatling-gun detachment under his command. The fighting continued at intervals until nightfall, but our men held resolutely to the positions gained at the cost of so much blood and toil.

I am greatly indebted to General Wheeler, who, as previously stated, returned from the sick list to duty during the afternoon. His cheerfulness and aggressiveness made itself felt on this part of the battlefield, and the information he furnished to me at various stages of the battle proved to be most useful.

My own health was impaired by overexertion in the sun and intense heat of the day before, which prevented me from participating as actively in the battle as I desired, but from a high hill near my headquarters I had a general view of the battlefield, extending from El Caney on the right to the left of our lines on San Juan Hill. My staff officers were stationed at various points on the field, rendering frequent reports, and through them, by the means of orderlies and the telephone, I was enabled to transmit my orders. During the afternoon I visited the position of Grimes's battery on the heights of El Pozo and saw Sumner and Kent in firm possession of San Juan Hill, which I directed should be intrenched during the night. My engineer officer, Lieutenant-Colonel Derby, collected and sent forward the necessary tools, and during the night trenches of very considerable strength were constructed.

During the afternoon Major Dillenback, by my order, brought forward the two

remaining batteries of his battalion and put them in position at El Pozo, to the left of Grimes. Later in the afternoon all three batteries were moved forward to positions near the firing line; but the nature of the country and the intensity of the enemy's small-arms fire were such that no substantial results were gained by our artillery in the new positions. The batteries were intrenched during the night. General Duffield, with the Thirty-third Michigan, attacked Aguadores as ordered, but was unable to accomplish more than to detain the Spaniards in that vicinity.

After the brilliant and important victory gained at El Caney, Lawton started his tired troops, who had been fighting all day and marching much of the night before, to connect with the right of the cavalry division. Night came on before this movement could be accomplished. In the darkness the enemy's pickets were encountered, and the division commander, being uncertain of the ground and as to what might be in his front, halted his command and reported the situation to me. This information was received about 12.30 a. m., and I directed General Lawton to return by my headquarters and the El Pozo house, as the only certain way of gaining his new position.

This was done, and the division took position on the right of the cavalry early next morning, Chaffee's brigade arriving first, about half-past 7, and the other brigades before noon.

On the night of July 1, I ordered General Duffield, at Siboney, to send forward the Thirty-fourth Michigan and the Ninth Massachusetts, both of which had just arrived from the United States. These regiments reached the front the next morning. The Thirty-fourth was placed in rear of Kent, and the Ninth was assigned to Bates, who placed it on his left.

Soon after daylight, on July 2, the enemy opened battle, but because of the intrenchments made during the night, the approach of Lawton's division, and the presence of Bates's brigade, which had taken position during the night on Kent's left, little apprehension was felt as to our ability to repel the Spaniards.

It is proper here to state that General Bates and his brigade had performed most arduous and efficient service, having marched much of the night of June 30-July 1 and a good part of the latter day, during which he also participated in the battle of El Caney, after which he proceeded, by way of El Pozo, to the left of the line at San Juan, reaching his new position about midnight.

All day on the 2d the battle raged with more or less fury, but such of our troops as were in position at daylight held their ground, and Lawton gained a strong and commanding position on the right.

About 10 p. m. the enemy made a vigorous assault to break through my lines, but he was repulsed at all points.

On the morning of the 3d the battle was renewed, but the enemy seemed to have expended his energy in the assault of the previous night, and the firing along the lines was desultory until stopped by my sending the following letter within the Spanish lines:

HEADQUARTERS UNITED FORCES,
Near San Juan River, July 3, 1898—8.30 a. m.

THE COMMANDING GENERAL OF THE SPANISH FORCES,
Santiago de Cuba.

SIR: I shall be obliged, unless you surrender, to shell Santiago de Cuba. Please
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inform the citizens of foreign countries, and all women and children, that they should leave the city before 10 o'clock to-morrow morning.

Very respectfully, your obedient servant,

WILLIAM R. SHAFER,
Major-General, U. S. Volunteers.

To this letter I received the following reply:

SANTIAGO DE CUBA, *July 3, 1898.*

His Excellency the GENERAL COMMANDING FORCES OF THE UNITED STATES,
Near San Juan River.

SIR: I have the honor to reply to your communication of to-day, written at 8.30 a. m. and received at 1 p. m., demanding the surrender of this city, or in the contrary case announcing to me that you will bombard this city, and that I advise the foreigners, women, and children, that they must leave the city before 10 o'clock to-morrow morning.

It is my duty to say to you that this city will not surrender, and that I will inform the foreign consuls and inhabitants of the contents of your message.

Very respectfully,

JOSÉ TORAL,
Commander in Chief, Fourth Corps.

Several of the foreign consuls came into my lines and asked that the time given for them, the women and children, to depart from the city be extended until 10 o'clock on July 5. This induced me to write a second letter, as follows:

SANTIAGO DE CUBA, *July 3, 1898.*

The COMMANDING GENERAL, SPANISH FORCES,
Santiago de Cuba.

SIR: In consideration of a request of the consular officers in your city for further delay in carrying out my intentions to fire on the city, and in the interests of the poor women and children, who will suffer very greatly by their hasty and enforced departure from the city, I have the honor to announce that I will delay such action solely in their interests until noon of the 5th, provided that during the interim your forces make no demonstration whatever upon those of my own.

I am, with great respect, your obedient servant,

WILLIAM R. SHAFER,
Major-General, U. S. Volunteers.

My first message went in under a flag of truce at 12.30 p. m. I was of the opinion that the Spaniards would surrender if given a little time, and I thought this result would be hastened if the men of their army could be made to understand they would be well treated as prisoners of war. Acting upon this presumption, I determined to offer to return all the wounded Spanish officers at El Caney who were able to bear transportation, and who were willing to give their paroles not to serve against the forces of the United States until regularly exchanged. This offer was made and accepted. These officers, as well as several of the wounded Spanish privates, 27 in all, were sent to their lines under the escort of some of our mounted cavalry. Our troops were received with honors, and I have every reason to believe the return of the Spanish prisoners produced a good impression on their comrades.

The cessation of firing about noon on the 3d practically terminated the battle of Santiago; all that occurred after this time may properly be treated under the head of the siege which followed. After deducting the detachments retained at Siboney and Daiquiri to render those depots secure from attack, organizations held to protect our flanks, others acting as escorts and guards to light batteries, the members of the hospital corps, guards left in charge of blanket rolls which the intense heat caused the men to cast aside before entering battle, orderlies, etc., it is doubtful if we had more than 12,000 men on the firing line on July 1, when the battle was fiercest, and when the important and strong positions of El Caney and San Juan were captured. A few Cubans assisted in the attack at El Caney, and fought val-

antly, but their numbers were too small to materially change the strength, as indicated above. The enemy confronted us with numbers about equal to our own. They fought obstinately in strong and intrenched positions, and the results obtained clearly indicate the intrepid gallantry of the company officers and men and the benefits derived from the careful training and instruction given in the company in recent years in rifle practice and other battle exercises. Our losses in these battles were 22 officers and 208 men killed and 81 officers and 1,203 men wounded; missing, 79. The missing, with few exceptions, reported later.

The arrival of General Escario on the night of July 2, and his entrance into the city was not anticipated, for, although it was known, as previously stated, that General Pando had left Manzanillo with reinforcements for the garrison of Santiago, it was not believed his troops could arrive so soon. General Garcia, with between 4,000 and 5,000 Cubans, was intrusted with the duty of watching for and intercepting the reenforcement expected. This, however, he failed to do, and Escario passed into the city along on my extreme right and near the bay. Up to this time I had been unable to complete the investment of the town with my own men, but to prevent any more reinforcements coming in, or the enemy escaping, I extended my lines as rapidly as possible to the extreme right, and completed the investment of the place, leaving General Garcia's forces in the rear of my right flank to scout the country for any approaching Spanish reinforcements, a duty which his forces were very competent to perform.

It had been reported that 8,000 Spanish troops had left Holguin for Santiago. It was also known that there was a considerable force at San Luis, 20 miles to the north.

In the battle of Santiago the Spanish navy endeavored to shell our troops on the extreme right, but the latter were concealed by the inequalities of the ground, and the shells did little, if any, harm. Their naval forces also assisted in the trenches, having 1,000 on shore, and I am informed they sustained considerable loss; among others, Admiral Cervera's chief of staff was killed. Being convinced the city would fall, Admiral Cervera determined to put to sea, informing the French consul it was better to die fighting than to sink his ships. The news of the great naval victory which followed was enthusiastically received by the army.

The information of our naval victory was transmitted under flag of truce to the Spanish commander in Santiago on July 4, and the suggestion again made that he surrender to save needless effusion of blood.

On the same date I informed Admiral Sampson that if he would force his way into the harbor the city would surrender without any further sacrifice of life. Commodore Watson replied that Admiral Sampson was temporarily absent, but that in his (Watson's) opinion the navy should not enter the harbor.

In the meanwhile, letters passing between General Toral and myself caused the cessation of hostilities to continue. Each army, however, continued to strengthen its intrenchments. I was still of the opinion the Spaniards would surrender without much more fighting, and on July 6 called General Toral's attention to the changed conditions, and at his request gave him time to consult his home Government. This he did, asking that the British consul, with the employees of the cable company, be permitted to return from El Caney to the city. This I granted.

The strength of the enemy's position was such I did not wish to assault if it could be avoided.

An examination of the enemy's works made after the surrender fully justified the wisdom of the course adopted. The intrenchments could only have been carried with very great loss of life, probably with not less than 3,000 killed and wounded.

On July 8 General Toral offered to march out of the city with arms and baggage, provided he would not be molested before reaching Holguin, and to surrender to the American forces the territory then occupied by him. I replied that while I would submit his proposition to my home Government, I did not think it would be accepted.

In the meanwhile arrangements were made with Admiral Sampson that when the army again engaged the enemy the navy would assist by shelling the city from ships stationed off Aguadores, dropping a shell every few minutes.

On July 10 the First Illinois and the First District of Columbia arrived and were placed on the line to the right of the cavalry division. This enabled me to push Lawton farther to the right and to practically command the Cobra road.

On the afternoon of the date last mentioned the truce was broken off at 4 p. m., and I determined to open with four batteries of artillery, and went forward in person to the trenches to give the necessary orders, but the enemy anticipated us by opening fire with his artillery a few minutes after the hour stated. His batteries were apparently silenced before night, while ours continued playing upon his trenches until dark. During this firing the Navy fired from Aguadores, most of the shells falling in the city. There was also some small-arms firing. On this afternoon and the next morning we lost Capt. Charles W. Rowell, Second Infantry, and one man killed, and Lieutenant Lutz, Second Infantry, and ten men wounded.

On the morning of July 11 the bombardment by the Navy and my field guns was renewed and continued until nearly noon, and on the same day I reported to the Adjutant-General of the Army that the right of Ludlow's brigade of Lawton's division rested on the bay. Thus our hold upon the enemy was complete.

At 2 p. m. on this date, the 11th, the surrender of the city was again demanded. The firing ceased and was not again renewed. By this date the sickness in the Army was increasing very rapidly as a result of exposure in the trenches to the intense heat of the sun and the heavy rains. Moreover the dew in Cuba are almost equal to rains. The weakness of the troops was becoming so apparent I was anxious to bring the siege to an end, but, in common with most of the officers of the Army, I did not think an assault would be justifiable, especially as the enemy seemed to be acting in good faith in their preliminary propositions to surrender.

On July 11, I wrote General Toral as follows:

"With the largely increased forces which have come to me, and the fact that I have your line of retreat securely in my hands, the time seems fitting that I should again demand of your excellency the surrender of Santiago, and of your excellency's army. I am authorized to state that should your excellency so desire the Government of the United States will transport the entire command of your excellency to Spain."

General Toral replied that he had communicated my proposition to his general in chief, General Blanco.

July 12, I informed the Spanish commander that Major-General Miles, commander in chief of the American Army, had just arrived in my camp, and requested him to grant us a personal interview on the following day. He replied he would be pleased to meet us. The interview took place on the 13th, and I informed him his surrender only could be considered, and that as he was without hope of escape he had no right to continue the fight.

On the 14th another interview took place, during which General Toral agreed to surrender upon the basis of his army, the Fourth Army Corps, being returned to Spain, the capitulation embracing all of eastern Cuba east of a line passing from Aserraderos on the south, to Sagua de Tanamo on the north, via Palma Soriano. It was agreed commissioners should meet during the afternoon to definitely arrange the terms of surrender, and I appointed Major-Generals Wheeler and Lawton and Lieutenant Miley to represent the United States.

The Spanish commissioners raised many points, and were especially desirous of retaining their arms. The discussion lasted until late at night, and was renewed at 9.30 o'clock next morning. The terms of surrender finally agreed upon included about 12,000 Spanish troops in the city and as many more in the surrendered district.

It was arranged the formal surrender should take place between the lines on the morning of July 17, each army being represented by 100 armed men. At the time appointed I appeared at the place agreed upon with my general officers, staff, and 100 troopers of the Second Cavalry under Captain Brett. General Toral also arrived with a number of his officers and 100 infantry. We met midway between the representatives of our two armies, and the Spanish commander formally consummated the surrender of the city and the 24,000 troops in Santiago and the surrendered district.

After this ceremony I entered the city with my staff and escort, and at 12 o'clock noon the American flag was raised over the governor's palace with appropriate ceremonies.

The Ninth Infantry immediately took possession of the city, and perfect order was maintained. The surrender included a small gunboat and about 200 seamen, together with five merchant ships in the harbor. One of these vessels, the *Mexico*, had been used as a war vessel and had four guns mounted on it.

In taking charge of the civil government all officials who were willing to serve were retained in office, and the established order of government was preserved as far as consistent with the necessities of military rule.

I soon found the number of officials was excessive, and I greatly reduced the list, and some departments were entirely abolished.

A collector of customs, Mr. Donaldson, arrived soon after the surrender, and due to his energy and efficiency this department was soon working satisfactorily. The total receipts had, up to my departure, been \$102,000.

On August 4, I received orders to begin the embarkation of my command and ship them to Montauk Point, Long Island, N. Y. The movement continued without interruption until August 25, when I sailed for Montauk with the last troops in my command, turning over the command of the district to Major-General Lawton.

Before closing my report I wish to dwell upon the natural obstacles I had to encounter, and which no foresight could have overcome or obviate. The rocky and precipitous coast afforded no sheltered landing places, the roads were mere

bridle paths, the effect of the tropical sun and rains upon unacclimated troops was deadly, and a dread of strange and unknown diseases had its effect on the army.

At Daiquiri the landing of the troops and stores was made at a small wooden wharf, which the Spaniards tried to burn, but unsuccessfully, and the animals were pushed into the water and guided to a sandy beach about 200 yards in extent. At Siboney the landing was made on the beach and at a small wharf erected by the engineers.

I had neither the time nor the men to spare to construct permanent wharves.

In spite of the fact that I had nearly 1,000 men continuously at work on the roads, they were at times impassable for wagons.

The San Juan and Aguadores Rivers would often suddenly rise so as to prevent the passage of wagons, and then the eight pack trains with the command had to be depended upon for the victualing of my army, as well as the 20,000 refugees, who could not, in the interests of humanity, be left to starve while we had rations.

Often for days nothing could be moved except on pack trains.

After the great physical strain and exposure of July 1 and 2, the malarial and other fevers began to rapidly advance throughout the command, and on July 4 the yellow fever appeared at Siboney. Though efforts were made to keep this fact from the army, it soon became known.

The supply of quartermaster and commissary stores during the campaign was abundant, and, notwithstanding the difficulties in landing and transporting the rations, the troops on the firing line were at all times supplied with its coarser components, namely, of bread, meat, sugar, and coffee.

There was no lack of transportation, for at not a time up to the surrender could all the wagons I had be used.

In reference to the sick and wounded I have to say that they received every attention that it was possible to give them. The medical officers, without exception, worked night and day to alleviate the suffering, which was no greater than invariably accompanies a campaign. It would have been better if we had more ambulances, but as many were taken as was thought necessary, judging from previous campaigns.

The discipline of the command was superb, and I wish to invite attention to the fact that not an officer was brought to trial by court-martial, and, as far as I know, no enlisted man. This speaks volumes for an army of this size, and in a campaign of such duration.

In conclusion, I desire to express to the members of my staff my thanks for their efficient performance of all the duties required of them and the good judgment and bravery displayed on all occasions when demanded.

I submit the following recommendations for promotion, which I earnestly desire to see made. It is very little reward to give them for their devotion and fearless exposure of their lives in their country's cause.

E. J. McClernand, lieutenant-colonel and adjutant-general, U. S. Volunteers, to be brevetted colonel for gallantry in the face of the enemy on the 1st and 2d of July, and to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

George McC. Derby, lieutenant-colonel of engineers, U. S. Volunteers, to be brevetted colonel for hazardous service on July 1 and 2 in reconnoitering the enemy's lines, and to be brevetted brigadier-general for hazardous and meritorious service in ascending under a hot fire in a war balloon on July 1, thus gaining valuable information.

J. D. Miley, lieutenant-colonel and inspector-general, U. S. Volunteers, to be brevetted colonel for conspicuous gallantry in the battle of San Juan on July 1, and to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

R. H. Noble, major and adjutant-general, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

J. J. Astor, lieutenant-colonel and inspector-general, U. S. Volunteers, to be brevetted colonel for faithful and meritorious service during the campaign.

B. F. Pope, lieutenant-colonel and surgeon, U. S. Volunteers, to be brevetted colonel for faithful and meritorious service during the campaign.

Maj. S. W. Groesbeck, judge-advocate, U. S. Army, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Charles F. Humphrey, lieutenant-colonel, Quartermaster's Department, to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

John F. Weston, colonel and assistant commissary-general of subsistence, chief commissary, to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

C. G. Starr, major and inspector-general, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Leon S. Rondiez, major and quartermaster, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

H. J. Gallagher, major and commissary of subsistence, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Captain Brice, commissary of subsistence, U. S. Volunteers, to be brevetted major for faithful and meritorious service throughout the campaign.

E. H. Plummer, captain, U. S. Army, aid-de-camp, to be brevetted major for faithful and meritorious service throughout the campaign.

J. C. Gilmore, jr., captain and assistant adjutant-general, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

W. H. McKittrick, captain and assistant adjutant-general, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

Captain Johnson, assistant quartermaster, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

I wish to invite special attention to Dr. G. Goodfellow, of New York, who accompanied me throughout the campaign and performed much professional service, as well as duties as volunteer aid. I recommend him for favorable consideration of the War Department and appointment as surgeon of volunteers.

Mr. G. F. Hawkins, of New York, also accompanied me as volunteer aid, and I recommend him for favorable consideration of the War Department for faithful and important services rendered.

My thanks are due to Admiral Sampson and Captain Goodrich, U. S. N., for their efficient aid in disembarking my army. Without their assistance it would have been impossible to have landed in the time I did.

I also express my warmest thanks to division, brigade, and regimental commanders without exception for their earnest efforts in carrying out my wishes and for the good judgment they invariably displayed in handling their troops.

The reports of the division commanders are attached hereto, and those of the brigade and regimental commanders forwarded herewith and attention respectfully invited to them.

Very respectfully,

WILLIAM R. SHAFTER,
Major-General, U. S. Volunteers.

HEADQUARTERS FIFTH ARMY CORPS,
Camp Wikoff, Long Island, September 16, 1898.

ADJUTANT-GENERAL U. S. ARMY,
Washington, D. C.

SIR: By an oversight the Signal Corps was not mentioned in my report. I request that this supplementary report be filed with my original.

The Signal Corps proved itself very efficient and performed its duties to my entire satisfaction under the able management of the officer in charge, Lieutenant-Colonel Greene. I desire to add his name to those recommended for brevets, and recommend that he receive the brevet of colonel for faithful and meritorious services during the campaign.

I also wish to add to my list of recommendations the name of Lieut. William Brooke, Fourth Infantry, U. S. Army, who acted as my ordnance officer from the commencement of the expedition until after the fall of Santiago, and I recommend him to be brevetted major for very efficient and meritorious service during that period.

Very respectfully,

WILLIAM R. SHAFTER,
Major-General, U. S. Volunteers, Commanding.

GOVERNORS ISLAND, NEW YORK HARBOR,
November 21, 1898.

SIR: In connection with my report of September 12, 1898, detailing the operations of the army in the campaign before Santiago de Cuba, I wish to invite special attention to the very valuable services rendered by Lieut. Col. George McC. Derby, Chief Engineer, U. S. Volunteers, and the six officers who assisted him. Their reconnaissances, made daily from the time of landing until the attack, gave me most valuable knowledge of the country up to the enemy's picket line. The two companies, C and E, United States Engineers, also rendered valuable services in road building and road repairing, construction of pier and temporary road bridges, and deserve special credit for the rapidity with which repairs were made on railroad bridges, particularly the large break in the bridge of Aguadores, the repairing of which gave us railroad communication between Siboney and Santiago. Extensive

and important repairs were also made on the bridges on the railroad from Santiago to San Luis, which gave us connection with the interior, otherwise impossible, on account of the impassable condition of the roads.

I also desire to mention the squadron of the Second United States Cavalry, under Lieut. Col. William A. Rafferty, of that regiment. These four troops, under command of Captains Brett and Lewis and Lieutenants Allen and Clark, constituted the only mounted force of my command, and performed most arduous and valuable services in escorting wagon and pack trains along dangerous sections of the road and in furnishing escorts for light batteries in battle and orderlies for my own and division headquarters. While the dense undergrowth, which covered most of the country, prevented this squadron from performing some of the duties usually assigned to a mounted command, yet it performed an immense amount of labor, which was accomplished to my entire satisfaction. As separate organizations, these troops were present on various parts of the battlefields of July 1, 2, and 3, and conducted themselves most creditably, as did the troopers individually when carrying dispatches under fire. I commend the squadron to the favorable consideration of my superiors.

Very respectfully,

WM. R. SHAFTER,

Major-General, U. S. Volunteers.

TO ADJUTANT-GENERAL U. S. ARMY,

Washington, D. C.

HEADQUARTERS CAVALRY DIVISION,

Camp 6½ miles east of Santiago de Cuba, June 26, 1898.

TO ADJUTANT-GENERAL FIFTH ARMY CORPS,

Steamship Seguranca.

SIR: I have the honor to report that in obedience to instructions from the major-general commanding, given to me in person on June 23, I proceeded to Siboney (Juraquacito).

The enemy had evacuated the place at daylight that morning, taking a course toward Sevilla. A body of about 100 Cubans had followed and engaged the enemy's rear guard. About nine of them were wounded.

I rode out to the front and found the enemy had halted and established themselves at a point about three miles from Siboney. At night the Cubans returned to the vicinity of the town.

At 8 o'clock on that evening (of the 23d) General Young reached Siboney with 8 troops of Colonel Wood's regiment—A, B, D, E, F, G, K and L—500 strong; troops A, B, G, K, of the First Cavalry, in all 244; and troops A, B, E, and I of the Tenth Cavalry, in all 220 men, making the total force 964 men, which included nearly all of my command which had disembarked. These troops had marched from Daiquiri, 11 miles. With the assistance of General Castillo a rough map of the country was prepared and the position of the enemy fully explained, and I determined to make an attack.

At daylight on the 24th Wood's regiment was sent by General Young, accompanied by two of his staff officers, Lieuts. Tyree R. Rivers and W. K. Smedberg, jr., to approach the enemy on the left hand or more westerly road, while General Young, myself, and the troops of the First and Tenth Cavalry, with three Hotchkiss mountain guns, approached the enemy on the regular Sevilla road. We expected also to take the dynamite gun with us, but unfortunately it did not reach Siboney.

General Young and myself examined the position of the enemy. The lines were deployed and I directed him to open fire with the Hotchkiss guns. The enemy replied and the firing immediately became general.

Colonel Wood had deployed his regiment, his right nearly reaching the left of the regulars.

For an hour the fighting was very warm, the enemy being very lavish in the expenditure of ammunition, most of their firing being by volleys.

Finally the enemy gave way and retreated rapidly, our line keeping well closed upon them. Our men, being physically exhausted by both their exertions and the great heat, were incapable of maintaining the pursuit.

I can not speak too highly of the gallant and excellent conduct of the officers and men throughout the command.

General Young deserves special commendation for his cool, deliberate, and skillful management.

I also specially noticed his acting adjutant-general, Lieut. A. L. Mills, First Cavalry, who, under General Young's direction, was at the various parts of the line, acting with energy and cool courage.

The imperative necessity of disembarking with promptitude had impelled me to leave most of my staff to hasten this important matter, and, unfortunately, I only had with me Major Beach and Mr. Mestre, a Cuban volunteer aid, both of whom during the engagement most creditably and bravely performed their duties. I am especially indebted to Maj. W. D. Beach for his cool and good judgment.

Colonel Wood's regiment was on the extreme left of the line, and too far distant for me to be a personal witness of the individual conduct of his officers and men, but the magnificent and brave work done by his regiment under the lead of Colonel Wood testifies to his courage and skill. The energy and determination of this officer had been marked from the moment he reported to me at Tampa, Fla., and I have abundant evidence of his brave and good conduct on the field and I recommend him for consideration of the Government.

I must rely upon his report to do justice to his officers and men, but I desire personally to add that all that I have said about Colonel Wood applies equally to Lieutenant-Colonel Roosevelt.

I was immediately with the troops of the First and Tenth Regular Cavalry dismounted, and personally noticed their brave and good conduct, which will be specially mentioned by General Young.

I personally noticed the good conduct of Capts. W. H. Beck, Robert P. P. Wainwright, and Jacob G. Galbraith, Maj. James M. Bell, Capt. Thomas T. Knox, and Lieut. George L. Byrom. The last three were wounded.

Major Bell, as he laid on the ground with a broken leg, said: "I only regret I can't go on with you farther."

Captain Knox, though severely wounded, insisted to me that he was not much hurt and continued as long as possible to exercise command, and Lieutenant Byrom also continued upon the line until he fainted.

I recommend these officers for favorable consideration of the Government.

I can not state positively as to the size of the Spanish force which we engaged or the extent of their casualties further than that the force was much greater than ours, and that the information I have would indicate that their killed and wounded very far exceeded the losses which our troops sustained, but our estimates on these points can only be verified when we have access to the reports of the Spanish commanders.

The engagement inspirited our troops and must have had a bad effect upon the spirits of the Spanish soldiers.

It also gave our army a beautiful and well-watered country, in which we have established our encampments. It has also given us a full view of Santiago and the surrounding country and enabled us to reconnoiter close up to the fortifications of that place.

Very respectfully,

JOS. WHEELER,
Major-General, U. S. Volunteers, Commanding.

HEADQUARTERS CAVALRY DIVISION, U. S. ARMY,
Before Santiago, Cuba, July 7, 1898.

TO ADJUTANT-GENERAL,
Fifth Army Corps.

SIR: After the engagement of June 24, I pushed forward my command through Sevilla into the valley, Lawton's and Kent's commands occupying the hills in the vicinity of that place. After two days' rest Lawton was ordered forward, and on the night of the 30th instructions were given by Major-General Shafter to this officer to attack Caney while the cavalry division and Kent's division were ordered to move forward on the regular Santiago road. The movement commenced on the morning of July 1. The cavalry division advanced and formed its line with its left near the Santiago road, while Kent's division formed its line with the right joining the left of the cavalry division.

Colonel McClernand, of General Shafter's staff, directed me to give instructions to General Kent, which I complied with in person, at the same time personally directing General Sumner to move forward. The men were all compelled to wade the San Juan River to get into line. This was done under very heavy fire of both infantry and artillery. Our balloon having been sent up right by the main road, was made a mark of by the enemy. It was evident that we were as much under fire in forming

the line as we would be by an advance, and I therefore pressed the command forward from the covering which it was formed. It merged into open space in full view of the enemy, who occupied breastworks and batteries on the crest of the hill which overlooked Santiago, officers and men falling at every step. The troops advanced gallantly, soon reached the foot of the hill and ascended, driving the enemy from their works and occupying them on the crest of the hill. To accomplish this required courage and determination on the part of the officers and men of a high order, and the losses were very severe. Too much credit can not be given to General Sumner and General Kent and their gallant brigade commanders, Colonel Wood and Colonel Carroll, of the cavalry; Gen. Hamilton S. Hawkins, commanding First Brigade, Kent's Division, and Colonel Pearson, commanding Second Brigade. Colonel Carroll and Major Wessels were both wounded during the charge, but Major Wessels was enabled to return and resume command. Colonel Wikoff, commanding Kent's Third Brigade, was killed at 12.10; Lieutenant-Colonel Worth took command and was wounded at 12.15; Lieutenant-Colonel Liscum then took command and was wounded at 12.20, and the command then devolved upon Lieutenant-Colonel Ewers, Ninth Infantry.

Upon reaching the crest I ordered breastworks to be constructed, and sent to the rear for shovels, picks, spades, and axes. The enemy's retreat from the ridge was precipitate, but our men were so thoroughly exhausted that it was impossible for them to follow. Their shoes were soaked with water by wading the San Juan River, they had become drenched with rain, and when they reached the crest they were absolutely unable to proceed further. Notwithstanding this condition, these exhausted men labored during the night to erect breastworks, furnished details to bury the dead and carry the wounded back in improvised litters. I sent word along the line that reinforcements would reach us and that Lawton would join our right and that General Bates would come up and strengthen our left. After reaching the crest of the ridge, General Kent sent the Thirteenth Regulars to assist in strengthening our right. At midnight General Bates reported and I placed him in a strong position on the left of our line. General Lawton had attempted to join us from Caney, but when very near our lines he was fired upon by the Spaniards and turned back, but joined us next day at noon by a circuitous route. During all the day on July 2 the cavalry division, Kent's division, and Bates's brigade were engaged with the enemy, being subjected to a severe fire and incurring many casualties, and later in the day Lawton's division also became engaged.

During the entire engagement my staff performed their duties with courage, judgment, and ability. Special credit is due to Lient. Col. J. H. Dorst, Maj. William D. Beach, Capt. Joseph E. Dickman, and Lieut. M. F. Steele. I desire also to say that Lieuts. James H. Reeves and Joseph Wheeler, jr., Capt. William Astor Chanler, Maj. E. A. Garlington, Mr. Aurelius Mestre, and Corpl. John Lundmark also deserve high commendation for courage and good conduct. Major West, my quartermaster, deserves special commendation for his energy and good conduct during the campaign, and Maj. Valery Havard and Mr. Leonard Wilson have also done their full duty. Captain Hardie and First Lieut. F. J. Koester, with Troop G, Third Cavalry, were detailed with headquarters and conducted themselves handsomely under fire. The superb courage displayed by the officers and men will be specially mentioned in the reports of subordinate commanders.

Our losses were as follows:

	Killed.		Wounded.		Missing.		Aggregate.	Strength.	
	Off-cers.	Men.	Off-cers.	Men.	Off-cers.	Men.		Off-cers.	Men.
FIRST BRIGADE.									
Third Cavalry		3	6	45		3	57	23	420
Sixth Cavalry.....		4	4	51			59	16	427
Ninth Cavalry	1	2	2	17		1	23	12	207
	1	9	12	113		4	139	50	1,054
SECOND BRIGADE.									
Brigade staff	1		4				5	9	14
First Cavalry	1	12		47		1	61	21	501
Tenth Cavalry	2	5	8	61		5	80	22	450
First Volunteer Cavalry ...	1	14	5	67			87	25	517
Total.....	5	31	17	175		6	233	77	1,482
Total loss	6	40	29	288		10	272	127	2,536

The following is a list of the officers killed and wounded in the cavalry division:
Officers killed.—Lieut. Col. James M. Hamilton, Ninth Cavalry; Maj. Albert G. Forse, First Cavalry; Captain O'Niel, First United States Volunteer Cavalry; First Lieut. William E. Shipp, Tenth Cavalry; First Lieut. W. H. Smith, Tenth Cavalry; Acting Asst. Surg. H. W. Danforth, Ninth Cavalry.

Officers wounded.—Lieut. Col. Henry Carroll, Sixth Cavalry (commanding First Brigade); Maj. Henry W. Wessels, Third Cavalry; Maj. T. J. Wint, Tenth Cavalry; Major and Assistant Surgeon La Motte, First United States Volunteer Cavalry; Capt. J. B. Kerr, Sixth Cavalry; Capt. George A. Dodd, Third Cavalry; Capt. George K. Hunter, Third Cavalry; Capt. C. W. Taylor, Ninth Cavalry; Capt. A. P. Blocksam, Sixth Cavalry; Capt. John Bigelow, jr., Tenth Cavalry; Captain Henry, commander United States Volunteers; First Lieut. O. L. Mills, First Cavalry, captain and assistant adjutant-general volunteers; First Lieut. M. H. Barnum, Tenth Cavalry; First Lieut. Arthur Thayer, Third Cavalry; First Lieut. O. B. Meyer, Third Cavalry; First Lieut. M. S. Wood, Ninth Cavalry; First Lieutenant Merrillat, Third Cavalry; First Lieutenant Carr, First United States Volunteer Cavalry; First Lieutenant Leahey, First United States Volunteer Cavalry; Second Lieutenant Williard, Tenth Cavalry; Second Lieut. Walter C. Short, Sixth Cavalry; Second Lieutenant McCoy, Tenth Cavalry; Second Lieutenant Roberts, Tenth Cavalry; Second Lieut. H. S. Devereux, First United States Volunteer Cavalry; Second Lieutenant Day, First United States Volunteer Cavalry; Second Lieutenant Huskell, First United States Volunteer Cavalry.

General Kent's report of casualties has been forwarded.

The strength given in the tabulated statement above is the aggregate strength of the command, but as there were many details, the above figures are about 15 per cent greater than the forces actually engaged in battle.

The command has been active in strengthening their position, and commanders and their staffs have thoroughly informed themselves as to the topographical features of the country and the situation of the enemy.

Very respectfully,

JOS. WHEELER,
Major-General Volunteers.

HEADQUARTERS FIRST DIVISION, FIFTH ARMY CORPS,
In the field, Fort San Juan, near Santiago de Cuba, July 7, 1898.

THE ASSISTANT ADJUTANT-GENERAL, FIFTH ARMY CORPS.

SIR: I have the honor to submit the following report of the operations of my command in the battle of July 1:

On the afternoon of June 30, pursuant to orders given me verbally by the corps commander at his headquarters, I moved my Second and Third Brigades (Pearson and Wikoff) forward about 2 miles to a point on the Santiago road, near corps headquarters. Here the troops bivouacked, the First Brigade (Hawkins) remaining in its camp of the two preceding days, slightly in rear of corps headquarters.

On the following morning (July 1) at 7 o'clock I rode forward to the hill where Captain Grimes's battery was in position. I here met Lieutenant-Colonel McClermand, assistant adjutant-general Fifth Corps, who pointed out to me a green hill in the distance which was to be my objective on my left, and either he or Lieutenant Miley, of Major-General Shafter's staff, gave me directions to keep my right on the main road leading to the city of Santiago. I had previously given the necessary orders for Hawkins's Brigade to move early, to be followed in turn by Wikoff and Pearson. Shortly after Grimes's battery opened fire I rode down to the stream and there found General Hawkins at the head of his brigade at a point about 250 yards from the El Pozo sugar house. Here I gave him his orders.

The enemy's artillery was now replying to Grimes's battery. I rode forward with Hawkins about 150 yards, closely followed by the Sixth Infantry, which was leading the First Brigade. At this point I received instructions to allow the cavalry the right of way, but for some unknown reason they moved up very slowly, thus causing a delay in my advance of fully forty minutes. Lieutenant Miley, of General Shafter's staff, was at this point and understood how the division was delayed, and reported several times that he understood I was making all the progress possible. General Hawkins went forward, and word came back in a few minutes that it would be possible to observe the enemy's position from the front. I immediately rode forward with my staff. The fire of the enemy's sharpshooters was being distinctly felt at this time. I crossed the main ford of the San Juan River, joined General Hawkins, and with him observed the enemy's position from a point some distance in advance of the ford. General Hawkins deemed it possible to turn the enemy's right at Fort San Juan, but later, under the heavy fire, this was found impracticable for the First Brigade, but was accomplished by the Third Brigade coming up later on General Hawkins's left. Having completed the observation, with my staff I proceeded to join the head of my division, just coming under heavy fire. Approaching the First Brigade, I directed

them to move alongside the cavalry (which was halted). We were already suffering losses caused by the balloon near by attracting fire and disclosing our position.

The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thickets on our flanks, but from sharpshooters thickly posted in trees in our rear, and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment, of Hawkins's Brigade, came up. I turned them into the bypath indicated by Lieutenant-Colonel Derby, leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade, but under the galling fire of the enemy the leading battalion of this regiment was thrown into confusion and recoiled in disorder on the troops in rear. At this critical moment the officers of my staff practically formed a cordon behind the panic-stricken men and urged them to again go forward. I finally ordered them to lie down in the thicket and clear the way for others of their own regiment who were coming up behind. This many of them did, and the Second and Third battalions came forward in better order and moved along the road toward the ford. One of my staff officers ran back, waving his hat, to hurry forward the Third Brigade, who, upon approaching the forks, found the way blocked by men of the Seventy-first New York. There were other men of this regiment crouching in the bushes, many of whom were encouraged by the advance of the approaching column to rise and go forward. As already stated, I had received orders some time before to keep in rear of the cavalry division. Their advance was much delayed, resulting in frequent halts, presumably to drop their blanket rolls and due to the natural delay in fording a stream. These delays under such a hot fire grew exceedingly irksome, and I therefore pushed the head of my division as quickly as I could toward the river, in column of files or twos, parallel in the narrow way by the cavalry. This quickened the forward movement and enabled me to get into position as speedily as possible for the attack. Owing to the congested condition of the road the progress of the narrow columns was however painfully slow. I again sent a staff officer at a gallop to urge forward the troops in rear. The head of Wikoff's brigade reached the forks at 12.20 p. m. and hurried on the left, stepping over prostrate forms of men of the Seventy-first. This heroic brigade, consisting of the Thirteenth, Ninth, and Twenty-fourth U. S. Infantry, speedily crossed the stream and were quickly deployed to the left of the lower ford. While personally superintending this movement, Colonel Wikoff was killed, the command of the brigade then devolving upon Lieutenant-Colonel Worth, Thirteenth Infantry, who immediately fell severely wounded, and then upon Lieutenant-Colonel Liscum, Twenty-fourth Infantry, who, five minutes later, also fell under the withering fire of the enemy. The command of the brigade then devolved upon Lieut. Col. E. P. Ewers, Ninth Infantry. Meanwhile, I had again sent a staff officer to hurry forward the Second Brigade which was bringing up the rear. The Tenth and Second Infantry, soon arriving at the forks, were deflected to the left, to follow the Third brigade, while the Twenty-first was directed along the main road to support Hawkins.

Crossing the lower ford a few minutes later, the Tenth and Second moved forward in column in good order toward the green knoll already referred to as my objective on the left. Approaching the knoll the regiments deployed, passed over the knoll and ascended the high ridge beyond, driving back the enemy in the direction of his trenches. I observed this movement from the Fort San Juan Hill. Col. E. P. Pearson, Tenth Infantry, commanding the Second Brigade, and the officers and troops under his command, deserve great credit for the soldierly manner in which this movement was executed. I earnestly recommend Colonel Pearson for promotion. Prior to this advance of the Second Brigade, the Third, connecting with Hawkins's gallant troops on the right, had moved toward Fort San Juan, sweeping through a zone of most destructive fire, scaling a steep and difficult hill and assisting in capturing the enemy's strong position (Fort San Juan) at 1.30 p. m. This crest was about 125 feet above the general level and was defended by deep trenches and a loop-holed brick fort, surrounded by barbed wire entanglements. General Hawkins, some time after I reached the crest, reported that the Sixth and Sixteenth Infantry had captured the hill, which I now consider incorrect; credit is almost equally due the Sixth, Ninth, Thirteenth, Sixteenth, and Twenty-fourth Regiments of Infantry. Owing to General Hawkins's representations, I forwarded the report sent to Corps Headquarters about 3 p. m. that the Sixth and Sixteenth Infantry regiments had captured the hill. The Thirteenth Infantry captured the enemy's colors waving over the fort, but unfortunately destroyed them, distributing the fragments among the men, because, as was asserted, "It was a bad omen," two or three men having been shot while assisting Private Arthur Agnew, Company H, Thirteenth Infantry, the captor. All fragments which could be recovered are submitted with this report. *The greatest credit is due to the officers of my*

command, whether company, battalion, regimental, or brigade commanders, who so admirably directed the formation of their troops, unavoidably intermixed in the dense thicket, and made the desperate rush for the distant and strongly defended crest. I have already mentioned the circumstances of my Third Brigade's advance across the ford where, in the brief space of ten minutes, it lost its brave commander (killed) and the next two ranking officers by disabling wounds, yet, in spite of these confusing conditions, the formations were effected without hesitation, although under a stinging fire, companies acting singly in some instances, and by battalion and regiments in others, rushing through the jungle across the stream, waist deep, and over the wide bottom thickly set with barbed wire entanglements. In this connection I desire to particularly mention First Lieut. Wendell L. Simpson, adjutant Ninth Infantry, acting assistant adjutant-general, Third Brigade, who was noticeably active and efficient in carrying out orders which I had given him to transmit to his brigade commander, who no longer existed.

The enemy having retired to a second line of rifle pits, I directed my line to hold their positions and entrench. At ten minutes past 3 p. m. I received almost simultaneously two requests—one from Colonel Wood, commanding a cavalry brigade, and one from General Sumner, asking for assistance for the cavalry on my right, "as they were hard pressed." I immediately sent to their aid the Thirteenth Infantry, who promptly went on this further mission, despite the heavy losses they had already sustained.

Great credit is due to the gallant officer and gentleman, Brig. Gen. H. S. Hawkins, who, placing himself between the two regiments, leading his brigade, the Sixth and Sixteenth Infantry, urged and led them by voice and bugle calls to the attack so successfully accomplished. My earnest thanks are due to my staff officers present at my side and under my personal observation on the field, especially to Maj. A. C. Sharpe, assistant adjutant-general; Maj. Philip Reade, inspector-general; Capt. U. G. McAlexander, chief quartermaster, and my aids, First Lieut. George S. Cartwright, Twenty-fourth Infantry, and First Lieut. William P. Jackson, Second Infantry; also to Mr. Adolpho Carlos Munoz, the latter a volunteer aid, subsequently wounded in the fight of the 2d instant, who richly merits a commission for his able assistance, given without pay.

The officers enumerated should at least be brevetted for gallantry under fire. I also personally noticed the conduct of First Lieut. F. J. Kirkpatrick, assistant surgeon, United States Army, on duty with the Twenty-fourth Infantry, giving most efficient aid to the wounded under fire. I observed several times First Lieut. J. D. Miley, Fifth Artillery, aid to General Shafter, who was conspicuous throughout the day for his coolness under fire, delivering instructions with apparent unconcern. The bloody fighting of my brave command can not be adequately described in words. The following list of killed, wounded, and missing, tells the story of their valor:

Report of killed, wounded, and missing July 1, 1898, First Division, Fifth Army Corps.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
First Brigade:					
Sixteenth Infantry	1	13	5	83	6
Sixth Infantry	4	13	7	92	.....
Seventy-first New York Volunteer Infantry...	4	12	1	47	43
Total	9	38	13	221	49
Second Brigade:					
Tenth Infantry	1	4	5	21	.....
Twenty-first Infantry		5	1	25	.....
Second Infantry		1	4	16	.....
Total	1	10	10	62	.....
Third Brigade:					
Brigade commander	1	.....	.....	.....	.....
Ninth Infantry	1	3	.....	23	1
Thirteenth Infantry	2	16	5	81	1
Twenty-fourth Infantry	2	10	4	73	7
Total	6	29	9	177	9
Grand total	16	77	32	460	58

At daylight on the morning of July 2 the enemy resumed the battle, and firing continued throughout the day, part of the time in a drenching rain. At night-fall the firing ceased, but at 9 p. m. a vigorous assault was made all along our lines. This was completely repulsed, the enemy again retiring to his trenches. The following morning firing was resumed and continued until near noon when a white flag was displayed by the enemy and firing was ordered to cease. The casualties of these two days (July 2 and 3) were as follows:

Report of killed, wounded, and missing, July 2, 1898, First Division, Fifth Army Corps.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
Division Staff:					
First Brigade			1		
General officers			1		
Field and staff:					
Sixth Infantry				2	
Sixteenth Infantry		1		21	1
Seventy-first New York Volunteer Infantry		1		7	
Total		2	1	30	1
Second Brigade:					
Field and staff					
Tenth Infantry		1		14	3
Twenty-first Infantry		1		7	
Second Infantry		4		31	
Total		6		52	3
Third Brigade:					
Field and staff					
Ninth Infantry				4	
Thirteenth Infantry				3	
Twenty-fourth Infantry		1	2	1	
Total		1	2	8	
Grand total		9	4	90	4

Mr. A. C. Munoz, volunteer aid to division commander.

Report of killed, wounded, and missing, July 3, 1898, First Division, Fifth Army Corps.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
First Brigade:					
Field and staff					
Sixth Infantry				2	
Sixteenth Infantry				1	
Seventy-first New York Volunteer Infantry				4	
Total				7	
Second Brigade:					
Field and staff					
Tenth Infantry					
Twenty-first Infantry					
Second Infantry		1			
Total		1			

Report of killed, wounded, and missing, July 3, 1898, First Division, Fifth Army Corps—Continued.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
Third Brigade:					
Field and staff					
Ninth Infantry					
Thirteenth Infantry				1	
Twenty-fourth Infantry					
Total				1	
Grand total		1		8	
Grand total, July 1, 2, and 3, 1898	12	87	36	561	62

One hospital corps man killed, attached to Tenth Infantry, not included in above total.

I desire, in conclusion, to express my gratitude to Maj. Gen. Joseph Wheeler for his courteous conduct to me, and, through me, to my division, under the trying circumstances enumerated.

Though ill and suffering, General Wheeler was so perfectly at home under fire that he inspired all of us with assurance.

Attention is invited in this connection to the reports of brigade and subordinate commanders herewith. I cordially indorse their commendations.

Very respectfully,

J. FORD KENT,
Brigadier-General, United States Volunteers, Commanding.

HEADQUARTERS SECOND DIVISION, FIFTH ARMY CORPS,
Camp near Santiago de Cuba, July 3, 1898.

The ADJUTANT-GENERAL,
Fifth Army Corps, near Santiago de Cuba.

SIR: I have the honor to report the following operations of the Second Division in the capture of El Caney on July 1, 1898. The town of El Caney is situated at an important point about 4 miles northeast of Santiago de Cuba, on the main road from Guantauamo to that city, where reinforcements for the Spanish garrison of Santiago de Cuba would probably concentrate. The town was strongly fortified with numerous blockhouses within its limits and on the roads leading thence. On a prominent hill of the town was a stone fort surrounded, as is now known, by intrenchments cut in solid rock. The reduction of El Caney being determined upon, and being on the right flank of the general advance on Santiago de Cuba, the duty devolved on the Second Division, to which was attached Light Battery E, First Artillery commanded by Capt. Allyn Capron, First Artillery. After due reconnaissance by the division and brigade commanders, the movement began about 3 p. m. on June 30, from the division camp about 4 miles east of Santiago on the main road from Siboney through Sevilla. The position of the brigades and the details of operations on July 1 are quite fully set forth in the accompanying reports of regimental and brigade commanders and in the sketch herewith submitted. The light battery first opened on a column of Spanish troops which appeared to be cavalry moving westward from El Caney and about 2 miles range, resulting, as was afterwards learned, in killing 16 in the column. The battery remained during the action at its first position until about 2.30 p. m., when it was moved to a new position south of and about 1,000 yards from certain blockhouses in the town where a few shots, all taking effect, were fired. This firing terminated the action, as the Spanish garrison was attempting to escape. Gen. J. C. Bates, United States Volunteers, with two regiments of his independent brigade—the Third and Twentieth Infantry—having been sent by the major-general commanding the forces of the United States in Cuba to relieve the second brigade of this division, which was holding the main road from El Caney to Santiago, so as to permit it to join in the attack, also came forward, joined in the attack, taking position between the Second and Third Brigades, and rendered material assistance, especially in the assault of the stone fort.

I heartily approve the special mention of individuals and recommendations made in the reports of the regimental and brigade commanders, and regret that others who deserve mention have not received it, through circumstances. During the

action I was accompanied most of the time by Maj. Gen. J. C. Breckenridge, Inspector-General U. S. Army, as a spectator, and had the advantage of his valuable suggestions and advice during the day, for which I desire to express my sincere appreciation. His horse was shot under him on the advance upon Santiago the morning of the 2d instant.

To Gen. Adna R. Chaffee I am indebted for a thorough and intelligent reconnaissance of the town of El Caney and vicinity prior to the battle, and the submission of a plan of attack which was adopted. I consider General Chaffee one of the best practical soldiers in the Army and recommend him for special distinction for successfully charging the stone fort mentioned in this report, the capture of which practically closed the battle. I desire to invite special attention to General William Ludlow, commanding the First Brigade. General Ludlow's professional accomplishments are well known, and his assignment to command a brigade in my division I consider a high compliment to myself. In this battle General Ludlow proved himself a capable and able commander. His coolness, good judgment, and prompt action in difficult situations were remarkable. To this and his personal example on the firing line was due the decisive success of the attack on his part of the line. I recommend General Ludlow for substantial recognition.

To Capt. H. C. Carbaugh, assistant adjutant-general, adjutant-general of the division, I desire to express my thanks and appreciation for untiring energy and faithful work in dangerous positions on this occasion, and I desire particularly to mention him for gallantry in volunteering to carry and carrying to General Chaffee, while he was most hotly engaged on the firing line, instructions concerning the assault upon the stone fort mentioned in these reports, and to recommend Captain Carbaugh for promotion to the rank of major and assistant adjutant-general and for brevet of lieutenant-colonel for this act. I desire also to commend to favorable consideration Maj. G. Creighton Webb, inspector-general on my staff, for persistently riding his horse along the firing line of the First Brigade in search of the brigade-commander to deliver important instructions when men of his escort demurred at going with him, and recommend that he receive the brevet of lieutenant-colonel of volunteers. I am particularly pleased that this battle gives me a suitable opportunity to call to the notice of my superiors Mr. R. G. Mendoza, a volunteer aid on my staff. Mr. Mendoza is a Cuban by birth, an American citizen, a young man of prepossessing appearance, of education and refinement. He joined me at Tampa, Fla., with the consent and authority of the general commanding the forces, as a volunteer aid. Since that time he has become one of my most competent and reliable assistants, and has been untiring in his labors, both night and day. In the battle he was active, energetic, and courageous. He has my hearty thanks for his invaluable assistance, and I strongly recommend and urge that he be offered the appointment of captain and assistant adjutant-general of volunteers and that he be left on duty with me. I desire also to commend for gallantry and courageous conduct in this battle, and for faithful and valuable services generally, Mr. E. L. D. Breckenridge, a son of Maj. Gen. J. C. Breckenridge, Inspector-General of the Army, who has also been on duty on my staff during the campaign as volunteer aid. Mr. Breckenridge is educated and refined, a gentleman in every respect, and has proven in battle his courage and coolness. I earnestly recommend that he be appointed a second lieutenant in the Army in consideration of the services rendered in this battle. To Lieut. H. H. Warren, Second Massachusetts, aid-de-camp, I desire to tender my thanks for courageous and efficient performance of duty in this battle, and to recommend that he receive a brevet of captain of volunteers. To Surg. H. S. Kilbourne, chief surgeon, is due the thanks, not only of myself, but of the whole division for faithful and unremitting attention to the wounded on the field and under fire.

It may not be out of place for me to mention the fact that Capt. J. C. Gilmore, jr., of the staff of the general commanding the forces, joined me with important instructions and that he might see for himself the situation, the better to inform the commanding general, he rode the firing line with me, exhibiting a coolness under severe fire worthy a veteran.

Very respectfully,

H. W. LAWTON,
Brigadier-General, U. S. Volunteers, Commanding Division.

HEADQUARTERS INDEPENDENT BRIGADE,
In front of Santiago de Cuba, July 8, 1898.

ADJUTANT GENERAL FIFTH ARMY CORPS:

SIR: I have the honor to report that my brigade left Siboney, Cuba, on the evening of June 30, at 8.30, and marched up over the hill trail. We followed this trail to where it joins the main road and proceeded along the main road in the dark

to the place just vacated by Wheeler's cavalry division as a camp. Here we found General Wheeler's headquarter tents still standing, and went into camp in the rear of them about midnight. We struck camp at 6.30 a. m., July 1, and marched to a point adjacent to General Shafter's headquarters, where I reported in person to General Shafter. At 10.05 a. m. I moved my brigade from this location to within about a mile and a half of El Caney, and met General Lawton upon the road at this point. After a consultation with him, lasting some minutes, I halted my brigade upon the road in order to give an opportunity for the placing of a battery that General Lawton expected to put in position between Colonel Miles's right and General Chaffee's left. I waited some time for this to be done, but the battery not putting in an appearance, I moved my brigade down the road in the direction of El Caney, crossed the San Juan River, and taking the first crossroads moved to the right to a position upon this crossroad to the right of the brigade commanded by Colonel Miles, and pushed rapidly to the front. After my brigade remained in this road for some time, under a heavy fire, we moved to the right to the assault of a small hill, occupied upon the top by a stone fort and well protected by rifle pits. General Chaffee's brigade charged them from the right and the two brigades joining upon the crest, opened fire from this point of vantage, lately occupied by the Spanish, upon the village of El Caney. From this advantageous position the Spanish were easily driven from place to place in the village proper, and as fast as they sought shelter in one building were driven out to seek shelter elsewhere, the sharpshooters of my command were enabled to do effective work at this point. The town proper was soon pretty thoroughly cleaned out of Spanish, though a couple of blockhouses upon the hill to the right of the town offered shelter to a few, and some could be seen retreating along a mountain road leading to the northwest. A part of these made a stand in a field among some boulders. I desire to say at this point that the Third United States Infantry, under command of Col. John H. Page, and the Twentieth United States Infantry, under command of Maj. William S. McCaskey, performed most efficient and meritorious services in the engagement before the village of El Caney. At about 4.30 p. m. the firing from the village had practically ceased, and as General Ludlow's brigade was then moving up the valley from the left upon the village it was deemed unwise to charge El Caney, as our troops would have been subjected to the fire from this brigade. After consultation with General Chaffee, I withdrew my brigade, hoping there was yet time to aid in the attack more to the left. My command, having had a long hard march, the withdrawal took more time than anticipated; darkness was coming on. I therefore halted the command at the first water at which we arrived and proceeded in person to report to the corps commander; was then ordered to the extreme left. I immediately moved the command and reached this position at midnight. My command had been then continuously marching or fighting for twenty-seven and one-half hours, with the exception of six and one-half hours spent near General Wheeler's headquarters. On the morning of July 2 I placed the Twentieth Infantry on the left of the Second Infantry and in continuation of their line, and held the Third Infantry in reserve near the brigade of Colonel Pearson, of General Kent's division, as that part of the line seemed to need to be strengthened. The loss in action at El Caney suffered by this brigade was 3 killed and 10 wounded; on the 2d of July, was 1 killed and 18 wounded. The wounded include Captains Rodman and Moon, of the Twentieth Infantry.

I desire to mention the following members of my staff for efficient and gallant service in the action before El Caney and in front of Santiago: Major Logan, Major Wilkins, Captain Wright, and Lieutenant Smiley. I wish also to add that Major Ives, my chief surgeon, was on the firing line and did efficient services during the progress of the fight and behaved in most gallant manner. I invite attention to the inclosed sketch, which gives the itinerary of march of this brigade during the two days.

Very respectfully,

J. C. BATES,
Brigadier-General of Volunteers, Commanding Brigade.

TELEGRAPHIC AND OTHER CORRESPONDENCE RELATING TO THE WAR.

Early in May a movement upon Havana was contemplated, as it was believed that the city could be assaulted and captured before the rainy season set in, but the plan was subsequently abandoned on account of the reported movements of the enemy's fleet.

It was proposed to send a portion of the army of invasion from Tampa, and to gather another part of it at Key West, on account of the close proximity of the latter place to Mariel, Cuba (a point about 26 miles west of Havana), as will be shown by the following dispatches:

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 9, 1898.

The Major-General Commanding directs that the following orders be sent by telegraph to General Wade, at Tampa:

Direct Major-General Shafter to move his command, under protection of Navy, and seize and hold Mariel, or most important point on north coast of Cuba and where territory is ample to land and deploy army. Follow up his command with all the force sent to you. Troops will be sent you as rapidly as possible from Chickamauga and other points. Have troops fully equipped; send abundance of ammunition and ship with them food for men and animals for sixty days, to be followed by four months' supplies.

J. C. GILMORE,
Assistant Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, May 9, 1898—6.7 p. m.

General WADE, commanding troops at Tampa, Fla.:

With the approval of the Secretary of War, the Major-General Commanding directs that General Shafter move his command under protection of Navy and seize and hold Mariel, or most important point on north coast of Cuba, and where territory is ample to land and deploy army. Follow up his command with all the forces sent to you. Troops will be sent you as rapidly as possible from Chickamauga and other points. Have troops fully equipped, send abundance of ammunition, and ship with them food for men and animals for sixty days, to be followed by four months' supplies. Acknowledge receipt.

H. C. CORBIN, *Adjutant-General.*

One great difficulty in the concentration of a large force at Key West, however, was found to be a lack of fresh water there, as will be shown by the following dispatches:

TAMPA BAY HOTEL, *Tampa, Fla., May 7, 1898—3.44 p. m.*
ADJUTANT-GENERAL UNITED STATES ARMY, *Washington, D. C.:*

Am crowding work of watering and coal transport and put in pen and stall for sortie (stock?). Will have it completed Wednesday sure. Many obstacles to——.*

SHAFTER, *Brigadier-General.*

TAMPA BAY HOTEL, *Tampa, Fla., May 7, 1898—6.50 p. m.*
ADJUTANT-GENERAL, UNITED STATES ARMY,
War Department, Washington, D. C.:

Colonel Lawton just returned from Key West. Brings message from Commodore Watson that water is absolutely necessary; that supply on all ships is very short, and that if can assist him in getting supply it will be a great favor to him. A barge, capacity one hundred thousand gallons, can start in morning for Key West, towed by one of ships under charter. Cost of water two cents per gallon. No tug here for hire. Shall I send it?

SHAFTER, *Brigadier-General.*

* Telegram apparently not completed.

ADJUTANT-GENERAL'S OFFICE, *Washington, May 8, 1898.*

General SHAFER,

Tampa Bay Hotel, Tampa, Fla.

Your telegram concerning water supply for Commodore Watson received, and Secretary of War directs you to make every possible effort to furnish anything and everything to help him along. In this and other cases Secretary of War approves any action you take, but desires every such order of yours reported for his information.

H. C. CORBIN, *Adjutant-General.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 10, 1898.

The Major-General Commanding directs that the following orders be telegraphed General Wade, Tampa, Fla.: That the movement of troops to Cuba is delayed until Monday May 16, 1898. In the meantime he will send the infantry in the ships, with an abundant supply of water and whatever else is required with them, to Key West, there to disembark. The ships are to return to Tampa to carry more infantry to Key West until there are about 12,000 men there. These will move from Key West to Dry Tortugas and Cuba on ships coming from New York. Also, that General Brooke has been directed to send to Tampa from Chickamauga the Second, Seventh, Eighth, Twelfth, and Sixteenth Infantry. These can be forwarded to Key West by any means available.

J. C. GILMORE,
Assistant Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, May 10, 1898—6.35 p. m.

General WADE, *commanding Troops at Tampa, Fla.:*

Movement of troops to Cuba is delayed until Monday, May 16. In the meantime you will send infantry in the ships, with an abundant supply of water and whatever else is required with them, to Key West, there to disembark. The ships are to return to Tampa to carry more infantry to Key West until there are about 12,000 men there. These will move from Key West to Dry Tortugas and Cuba on ships coming from New York. General Brooke has been directed to send to Tampa from Chickamauga the Second, Seventh, Eighth, Twelfth, and Sixteenth Infantry. These can be forwarded to Key West by any means available.

By command General Miles.

H. C. CORBIN, *Adjutant-General.*

TAMPA BAY HOTEL, *Tampa, Fla., May 11, 1898.*
(Received Washington, 8.12 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, FOR COMMANDING GENERAL,
War Department, Washington, D. C.:

Water for large body of troops at Key West is serious question. Absolutely no water there. Only water barge from this port, capacity 130,000 gallons, should reach Key West to-morrow with water for Navy, and be back Friday. Transports carry considerable water, but have no way of distillation. Is imperative that water be placed in Key West before troops begin to arrive. Quartermaster-General has been asked to charter, clean, loan, and start 1,000,000 gallons tank steamer with light-draft barge for unloading. Dry Tortugas reported to have brackish water in cisterns. Am now trying to ascertain quantity and quality. Expect information.

J. F. WADE, *Brigadier General.*

TAMPA BAY HOTEL, Tampa, Fla., May 21, 1898—11.21 a. m.

Gen. N. A. MILES, Washington, D. C.:

On account of difficulty in finding suitable camp ground, with abundant water supply, I have temporarily stopped part of the volunteer regiments at Jacksonville, and placed them under command of General Lawton. The Government will not be subjected to extra expense on account of transportation, nor for supply depots or officer. They will be brought closer to Tampa as soon as possible. The principal difficulty here is water, which must be drawn from wells; surface water can not be used.

SHAFTER, Major-General.

WAR DEPARTMENT, Washington, May 26, 1898.

Maj. Gen. NELSON A. MILES,

Commanding U. S. Army, Washington, D. C.

SIR: You will proceed to the following points, to make a thorough inspection of the troops there in camp:

Chickamauga, Ga.

Tampa, Fla.

Mobile, Ala.

You will be accompanied by the officers of your personal staff. On the completion of this duty you will return to the city and make report of the inspection herein ordered.

I have the honor to be, very respectfully,

R. A. ALGER,
Secretary of War.

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 27, 1898.

The honorable the SECRETARY OF WAR.

SIR: Referring to my letter of yesterday, and to our consultation since, I desire to submit the following:

As we are now about to inaugurate active military operations in conjunction with the Navy, I think it would be advisable to load the transports at Tampa with a strong force of infantry and artillery, move them to Key West, and thence along the northern coast of Cuba, where they would have the full protection of Admiral Sampson's fleet until they reach Admiral Schley's fleet at Santiago de Cuba, and then, by a combined effort of the Army and Navy, capture the harbor, garrison, and possibly the Spanish fleet at that point.

If before reaching Admiral Schley's fleet it shall be found that he has already accomplished the above object, or that the Spanish fleet shall have escaped, I then urge the importance of a combined attack of the Army and Navy upon Porto Rico. We will be able to land a superior force, and I believe that a combined effort will result in capturing the island, with its garrison, provided it is done before it can be reinforced from Spain. The distance from Key West to Porto Rico is 1,040 miles, and from Cadiz, Spain, to Porto Rico it is about 4,000 miles. The possession of Porto Rico would be of very great advantage to the military, as it would cripple the forces of Spain, giving us several thousand prisoners. It could be well fortified, the harbor mined, and would be a most excellent port for our Navy, which could be speedily relieved from any responsibility in the charge of that port, as we could leave a sufficient garrison to hold it against any force that might be sent against it.

Then we should commence, in my judgment, a movement toward the west by capturing the ports along the northern coast of Cuba, at the eastern end, supplying the

insurgents with abundance of arms and munitions of war, and as speedily as possible land our cavalry and sufficient light artillery to enable them to move from the harbor of Pto de Nuevitas along the line of railroad to Puerto Principe. From that base our cavalry and light artillery, in conjunction with the forces of Lieutenant-General Garcia and General Gomez, should move west to near Santa Clara. These movements, in my judgment, can all be accomplished during the rainy season, through a country comparatively free from yellow fever, well stocked with cattle, and having grass sufficient for our animals. While this is being accomplished our Volunteer Army will be prepared to land in the vicinity of Mariel, Havana, or Matanzas in sufficient force to complete the capture or destruction of the Spanish forces upon the island of Cuba. The advantage of this movement will be that the army and navy will act in concert and close unison; that it does not divide our navy, and that it will utilize our most available military force in the best way during the time of the year when military operations are most difficult.

I believe that the entrance to the port of Cienfuegos can be obstructed or blocked by one or two monitors to better advantage than to send the army there, where it would have to meet a strong garrison, which is already there, and all of the forces that can be quickly sent there by rail directly from Havana and Matanzas.

If the above plan is approved, troops could be ordered to embark on the transports immediately, and the purpose would be the occupation of Spanish territory, first, by moving our troops as speedily as possible to Santiago de Cuba and Porto Rico, and later to the north coast of Cuba, especially our cavalry. This military occupation to continue until hostilities cease.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

At this time the Secretary of the Navy had become convinced that the enemy's fleet, under the command of Admiral Cervera, was in Santiago Harbor, and every energy was bent from that time to concentrate a force of the army near Santiago to aid in the capture or destruction of the fleet and army in Santiago and its harbor.

The great difficulty in the way of a prompt movement was the procurement of the necessary transports for that service, the Government having none of its own.

The imperfect facilities at Port Tampa made the task most difficult. While the wharf is a good one, the railroad facilities were inadequate, and the failure to label each car with its contents, and the congested state of the post-office where bills of lading were sent, added to the embarrassment of the situation.

Thirty-six transports were gathered at Port Tampa, few of them fitted for such service on account of their lack of sufficient ventilation and space to carry as large a force as was required.

They were, however, the best and all that could be had; and while the description of them furnished prior to their charter showed that they could transport about 23,000 men, with transportation, artillery, horses, quartermaster, commissary, and medical supplies, yet it was found that even the number shipped—about 16,000—was greater than should have been carried. But, fortunately, they arrived at their destination without accident and without any special inconvenience to the troops save that of being crowded.

The first duty for which General Shafter was selected—to make a reconnaissance in force, about 5,000 strong, on the south side of Cuba—was abandoned just as the expedition was prepared to sail from Tampa, on account of the movements of the enemy's fleet.

Major-General Shafter was selected to command the expedition to Santiago.

The following instructions were sent to General Shafter by the Major-General Commanding:

WAR DEPARTMENT,
Washington, May 31, 1898—2.30 a. m.

Maj. Gen. WILLIAM R. SHAFTER, *Tampa, Fla.:*

With the approval of the Secretary of War, you are directed to take your command on transports, proceed under convoy of the Navy to the vicinity of Santiago de Cuba, land your force at such place east or west of that point as your judgment may dictate, under the protection of the Navy, and move it onto the high ground and bluffs overlooking the harbor or into the interior, as shall best enable you to capture or destroy the garrison there, and cover the Navy as it sends its men in small boats to remove torpedoes, or, with the aid of the Navy, capture or destroy the Spanish fleet now reported to be in Santiago Harbor. You will use the utmost energy to accomplish this enterprise, and the Government relies upon your good judgment as to the most judicious use of your command, but desires to impress upon you the importance of accomplishing this object with the least possible delay. You can call to your assistance any of the insurgent forces in that vicinity and make use of such of them as you think advisable to assist you, especially as scouts, guides, et cetera. You are cautioned against putting too much confidence in any persons outside of your own troops. You will take every precaution against ambuscade or surprises or positions that may have been mined or are commanded by the Spanish forces. You will cooperate most earnestly with the naval forces in every way, agreeing beforehand upon a code of signals. Communicate your instructions to Admiral Sampson and Commodore Schley. On completion of this enterprise, unless you receive other orders or deem it advisable to remain in the harbor of Santiago de Cuba, reembark your troops and proceed to the harbor of Pto de Banes, reporting by the most favorable means for further orders and future important service—this with the understanding that your command has not sustained serious loss and that the above harbor is safe for your transports and convoy. When will you sail?

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

On May 30 Major-General Miles left for Tampa to assist in the embarkation of the troops, arriving at that point June 1.

On June 2 he reported that the working force at Tampa had been divided into three reliefs, each working eight hours during the twenty-four; nine ships being loaded at a time.

On June 4 the following dispatch was sent to General Shafter:

ADJUTANT-GENERAL'S OFFICE,
Washington, June 4, 1898, 6.15 p. m.

Major-General SHAFTER, *Tampa, Fla.:*

Admiral Sampson cables to-day: "*Merrimac* in channel. Cervera, with 4 ships and 2 torpedo boats, in harbor safely bottled up. He urges immediate aid from your troops. He reports 7,000 men intrenched in Juraquacito and Daiquiri; 5,000 at Morron de Cuba; 4,000 at other points; in bay 500, with small Hotchkiss gun.

Cervera sent flag of truce opprobriously to exchange prisoners for Naval Constructor Hobson and 7 men who unharmed with him on *Merrimac*, who were taken prisoners, in recognition of their bravery. We are sure Cervera is there."

ALGER, *Secretary of War.*

On June 5 the following was received from General Shafter:

TAMPA, FLA., June 4-5, 1898—6.32 a. m.

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

Replying to your dispatch that President wishes report of the situation, I have to say that everything possible is being done to get away, but delays occur that can not be prevented or foreseen. Siege guns have only been assembled late this evening. They will be loaded on cars to-night and sent to transports early in the morning and the loading rushed. Will begin putting men on to-morrow p. m., if possible, and be ready to start Monday night or Tuesday morning. The last of the troops from Chickamunga are expected to-night. Officers engaged in loading transports have worked night and day. The main cause for delay has been the fact that great quantities of stores have been rushed in promiscuously, and with no facilities to handle or store them. The last ten miles before reaching the wharf is a single track and very narrow place in which to work. The capacity of this place has been greatly exceeded. Could have put the troops on and rushed them off, but not properly equipped, as I know the President wishes them. I will not delay a minute longer than is absolutely necessary to get my command in condition, and start the earliest moment possible.

SHAFTER, *Major-General.*

The following dispatches will give a brief history of the Santiago campaign:

ADJUTANT-GENERAL'S OFFICE,

Washington, June 5, 1898—12 noon.

Major-General SHAFTER, *Tampa, Fla.:*

Your telegram of 6.45 this morning shown to the President, with which he expressed his satisfaction, with every confidence that you are doing everything for the best. I would like to have a telegram at 6 o'clock this evening of the situation.

H. C. CORBIN, *Adjutant-General.*

TAMPA, FLA., June 5, 1898—12.24 p. m.

The SECRETARY OF WAR, *Washington, D. C.:*

This expedition has been delayed through no fault of anyone connected with it. It contains the principal part of the Army, which for intelligence and efficiency is not exceeded by any body of troops on earth. It contains fourteen of the best conditioned regiments of volunteers, the last of which arrived this morning. Yet these have never been under fire. Between 30 and 40 per cent are undrilled, and in one regiment over 300 men had never fired a gun. I request ample protection at all times for this command from the Navy. This enterprise is so important that I desire to go with this army corps or to immediately organize another and go with it to join this and capture position number 2. Now that the military is about to be used, I believe it should be continued with every energy, making the most judicious disposition of it to accomplish the desired result.

MILES,

Major-General Commanding Army.

TAMPA, FLA., June 6, 1898—2.37 p. m.

SECRETARY OF WAR, *Washington, D. C.*:

In telegram sent you yesterday morning please substitute words "while on sea" for "at all times" after word "protection."

MILES,
Major-General Commanding.

NAVY DEPARTMENT, *Washington, June 6, 1898.*

SIR: This Department has received from Admiral Sampson, off Santiago de Cuba, a telegram from which the following is an extract: "Very important we should know immediately whether the army expedition has sailed for Santiago and its number of vessels." You are respectfully requested to give information on the above points as soon as practicable, in order that it may be communicated to the admiral. It is respectfully urged that the expedition should get off as soon as possible. The naval force is all ready to convoy it.

Very respectfully,

CHAS. H. ALLEN, .
Acting Secretary.

The Honorable the SECRETARY OF WAR.

TAMPA, FLA., June 6, 1898—11.40 p. m.

Hon. R. A. ALGER,

Secretary of War, Washington, D. C.:

Troops have been marching on board to-day and will continue all night. General Shafter hopes to sail to-morrow night or next day. There is siege artillery here and more will arrive before No. 2 can be ready. There should be a few regiments well equipped at Camp Alger.

MILES, *Major-General.*WAR DEPARTMENT, *Washington, June 7, 1898.*

To Major-General SHAFER or Major-General MILES,

Tampa, Fla.:

Secretary of Navy has received this dispatch from Sampson to-day: "Bombarded forts at Santiago 7.30 to-day, June 6. Have silenced works quickly without injury of any kind, though stationed within 3,000 yards. If 10,000 men were here, city and fleet would be ours within forty-eight hours. Every consideration demands immediate army movement. If delayed, city will be defended more strongly by guns taken from the fleet."

R. A. ALGER, *Secretary of War.*

WASHINGTON, June 7, 1898.

Major-General SHAFER, *Port Tampa, Fla.:*

Since telegraphing you, an hour since, the President directs you to sail at once with what force you have ready.

R. A. ALGER, *Secretary of War.*

TAMPA, FLA., June 7, 1898—9 p. m.

SECRETARY OF WAR, *Washington:*

I will sail to-morrow morning. Steam can not be gotten up earlier. There is loaded to-night one division of infantry (9 regiments), 16 companies of dismounted cavalry, 4 light batteries, 2 siege batteries artillery, 2 companies of engineers, and the troops from Mobile. I will try and get on the rest of the cavalry and another division of regular infantry by morning. I will sail then with whatever I have on board.

SHAFER, *Major-General.*

EXECUTIVE MANSION, *Washington*, June 7, 1898.General SHAFTER, *Tampa, Fla.*:

About how many men will you have ready by morning?

CORBIN, *Adjutant-General*.

PORT TAMPA, FLA. (direct), June 7, 1898—10.15 p. m.

Adjutant-General CORBIN:

I expect to have 834 officers 16,154 men on transports by daylight and will sail at that hour. Will wire particulars before starting.

SHAFTER.

TAMPA, FLA., June 7, 1898—9.34 p. m.

The PRESIDENT, *Washington*:

From the Commanding General down to the drummer boys, everyone is impatient to go, and annoyed at the delay. The last of the troops from Chickamanga arrived this morning and have been equipped and hurried to the steamers. Feel confident they will all do their best to carry out the wishes and directions of the President.

MILES, *Major-General Commanding*.WAR DEPARTMENT,
Washington, D. C., June 8, 1898.Major-General SHAFTER, *Tampa, Fla.*:

Wait until you get further orders before you sail. Answer quick.

R. A. ALGER, *Secretary of War*.WAR DEPARTMENT,
Washington, D. C., June 8, 1898.Major-General MILES, *Port Tampa, Fla.*:

I have sent the following telegram to Major-General Shafter: "Wait until you get further orders before you sail. Answer quick."

R. A. ALGER, *Secretary of War*.

TAMPA, FLA., June 8, 1898—4.32 p. m.

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Your dispatch of to-day received.

MILES,
Major-General Commanding Army.

PORT TAMPA, FLA., June 8, 1898—4.06 p. m.

R. A. ALGER, *Secretary of War, Washington, D. C.*:

Message received. Vessels are in the stream, but will be able to stop them before reaching the Gulf.

SHAFTER, *Major-General*.WAR DEPARTMENT,
Washington, June 8, 1898.Major-General MILES, *Tampa, Fla.*:

The reason for countermanding order you will find in the following. The order was given at the request of the Navy Department by direction of the President:

"KEY WEST, June 8.

"Spanish armor cruiser, second class, and Spanish torpedo-boat destroyer seen by *Eagle*, Nicholas Channel, Cuba. Destroy convoy. Detail follow. REMEX."

"KEY WEST, June 8.

"Last cipher just came by *Resolute*, just arrived; was pursued by two vessels, Nicholas Channel, Cuba, last night. Shall I order *Indiana* and all available cruisers to coast of Cuba? More detail to follow.

REMEY."

R. A. ALGER, *Secretary of War*.

TAMPA, FLA., June 8, 1898—11.42 p. m.

HON. SECRETARY OF WAR, *Washington, D. C.*:

If that report is true, those Spanish vessels could be within six hours of the loaded transports now, and there to-morrow. Have ample measures been taken by the navy to insure their safety?

MILES, *Commanding*.

PORT TAMPA, FLA., June 8, 1898—6.03 p. m.

HON. SECRETARY OF WAR, *Washington, D. C.*:

Ships commenced moving at 4 o'clock yesterday. They have been moving out during night and morning as loaded. Your dispatch just received. Ships can be recalled and await orders.

MILES, *Commanding*.

HEADQUARTERS OF THE ARMY,

Tampa, Fla., June 9, 1898—6.50 p. m.

SECRETARY OF WAR, *Washington, D. C.*:

Think it would be well to announce that the army got on board transports and started, as they did yesterday. Say nothing about its being recalled, but let our naval vessels go over the course that our transports would have gone over, with the hope of finding those Spanish ships. Does not the presence of Spanish war vessels in Cuban waters render it extremely hazardous to send troops on transports until they are captured, destroyed, or driven away? And, under the circumstances, is it expected that I shall organize expedition number 2? Arrangements had been partly made before the presence of the Spanish ships was announced.

MILES,

Major-General Commanding Army.

WAR DEPARTMENT, *June 9, 1898*.

Major-General MILES, *Tampa, Fla.*:

The President directs me to say that no change of plan will be made; that Expedition No. 2 must be organized as rapidly as possible. We are looking for transports and are satisfied the Navy will take care of that problem. Give nothing out.

R. A. ALGER, *Secretary of War*.

TAMPA, FLA., June 9, 1898—2.45 p. m.

SECRETARY OF WAR, *Washington, D. C.*:

It seems that it is a naval problem yet unsolved, and it might be advisable for the command now on board transports to have the protection of the entire Navy to convey it to number 1, number 2, or Nuevitas, or, if this is considered too hazardous, then keep the troops in healthful camps, as they are now, and assist the Navy to destroy the Spanish fleet. There are here 25 good steamers that could be used to carry water, coal, and supplies, guns, revolving cannon, and mortars, etc., and they could be added to the force of the Navy. It seems strange to be suggesting that the Army assist the Navy in this way, but I am sure we would receive most loyal support when the waters are safe for crossing with the Army.

MILES,

Major-General Commanding Army.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 9, 1898.

Major-General SHAFER, *Tampa, Fla.:*

Should you not sail until Monday, Secretary War desires to know whether you will keep your troops on board or disembark them.

H. C. CORBIN, *Adjutant-General.*

PORT TAMPA, FLA., *June 9, 1898—9.32 p. m.*

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

As the ships are lying it is impracticable to disembark the men. The general officers in command are all unanimous in this opinion. They will be taken off, however, in detachments for exercise. There is no place in the vicinity where they can be camped with any degree of comfort.

SHAFER,
Major-General, U. S. Volunteers.

The following communication was received from Navy Department on date named:

NAVY DEPARTMENT, *Washington, June 9, 1898.*

The Honorable the SECRETARY OF WAR.

SIR: Referring to the expedition destined to Santiago de Cuba, I have the honor to inform you that it is expected that the convoy of men-of-war, reenforced by two armored ships from Admiral Sampson's fleet, will be coaled and ready to start for Santiago de Cuba by the evening of Monday, the 13th instant, or by the morning of the following day, without regard to the Spanish ships.

The board is of opinion that the army transports should not move from the vicinity of Tampa until about twenty hours before the naval convoy will be coaled and ready to start. This latter time, though estimated as above, can not be closely fixed to-day, but probably can be by to-morrow evening.

Very respectfully,

CHAS. H. ALLEN,
Acting Secretary.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 9, 1898—9.50 p. m.

Major-General MILES, *Tampa Fla.:*

Following from the Acting Secretary Navy sent you for your information and you will transmit it to General Shafer:

"Referring to the expedition destined to Santiago de Cuba, I have the honor to inform you that it is expected that the convoy men-of-war, reenforced by two armored ships from Admiral Sampson's fleet, will be coaled and ready to start for Santiago by the evening of Monday, the 13th instant, or by the morning of the following day, without regard to the Spanish ships. The board is of opinion that army transports should not move from the vicinity of Tampa until about twenty hours before the naval convoy will be coaled and ready to start. This latter time, though estimated as above, can not be closely fixed to-day, but probably can be by to-morrow evening."

Any further information concerning the movement of vessels for convoy will be sent you the moment it is received.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, June 12, 1898—11 a. m.

Maj. Gen. W. R. SHAFER, *Port Tampa, Fla.:*

The following is sent you for your information and guidance: Commodore Remy, commandant of the naval base at Key West, has been directed to reassemble and

coal as soon as possible the naval force which was recently designated to convoy the army transports in which is embarked the military expedition for Santiago de Cuba. As soon as Commodore Remy reports when the convoy will be coaled and ready, his instructions are to send it to meet the army transports in the passage or strait between Rebecca Shoal and the Dry Tortugas, and considerable time would be saved if the army transports could leave Tampa about eighteen hours before the Key West division of the convoy reaches the neighborhood of Rebecca Shoal. The date and hour at which the Key West division of the convoy will reach the vicinity of Rebecca Shoal can not be exactly fixed, but you will be informed of it as soon as practicable.

You will place yourself in communication with Commodore Remy and arrange to meet convoy as herein suggested, making close connection. Acknowledge receipt.

By order Secretary War.

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT, *Washington, June 12, 1898.*

Major-General SHAFTER, *Port Tampa, Fla.:*

Having reference to telegram of this morning, the Secretary of War now directs me to inform you that the *Indiana* and other ships forming the convoy will meet the transports at Rebecca Shoal and proceed together to destination. You should reach the shoal not later than to-morrow afternoon. Confer freely with Commodore Remy.

H. C. CORBIN, *Adjutant-General.*

TAMPA, FLA., *June 12, 1898—7.18 p. m.*

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

4.30 p. m. Your dispatch in reference to starting delivered at 3 p. m. to-day. Have consulted with senior naval officer present, who says we must have daylight to get down to lower bay. Will start the transports at daylight to-morrow, and with good luck will meet convoy from Key West before Wednesday noon.

SHAFTER,

Major-General, U. S. Volunteers, Commanding.

PORT TAMPA, FLA., *June 13, 1898—1.10 p. m.*

SECRETARY OF WAR, *Washington, D. C.:*

Steamers are moving out to sea and should be away by 1 o'clock.

MILES, *Major-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C. June 14, 1898—11.40 p. m.

Major-General MILES, *Tampa, Fla.:*

Secretary War desires the names of the general officers accompanying General Shafter's expedition.

H. C. CORBIN, *Adjutant-General.*

TAMPA, FLA., *June 15, 1898—1.41 p. m.*

Gen. H. C. CORBIN,

Adjutant-General, U. S. Army, Washington, D. C.:

In reply to your telegram of yesterday the Major-General Commanding directs me to inform you that the following general officers accompanied General Shafter:

Maj. Gen. Joseph Wheeler, Brig. Gens. J. F. Kent, H. S. Hawkins, S. S. Sumner, J. C. Bates, S. B. M. Young, H. W. Lawton, and A. R. Chaffee. Also Major-General Breckinridge and Brig. Gen. William Ludlow went as inspecting officer and engineer officer from Headquarters Army, respectively.

MICHLER,
Assistant Adjutant-General.

After General Shafter had sailed, the following dispatch was sent to the Major-General Commanding the Army, June 15, the object being to have him fit out the expedition for Porto Rico:

WASHINGTON, D. C., *June 15, 1898.*

Major-General MILES, *Tampa, Fla.:*

Important business requires your presence here. Report at once.

R. A. ALGER, *Secretary of War.*

TAMPA, FLA., *June 15, 1898.*

SECRETARY OF WAR, *Washington, D. C.:*

I leave by the first train, 7.25 this evening.

MILES, *Major-General Commanding.*

KEY WEST, FLA., *June 15, 1898.*

(Received at Washington 10.55 p. m.)

Captain MONTGOMERY, *Executive Mansion, Washington, D. C.:*

Twenty-one transports and eight convoys off Tortugas 10 this morning, and at same place at sundown.

SAWYER, *Censor.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington June 22, 1898, 6.22 p. m.)

SECRETARY OF WAR, *Washington, D. C.:*

Off Daiquiri, Cuba, June 22, 1898.—Landing at Daiquiri this morning successful. Very little, if any, resistance.

SHAFTER.

ADJUTANT-GENERAL'S OFFICE,

Washington, June 21, 1898.

Major-General SHAFTER, *Santiago de Cuba:*

Secretary War directs that the transports that went with you be returned to Tampa for reenforcements under same convoy that conducted you to your present station, unless you think it unsafe to send it. Also report as to your needs. Proposed to send you auxiliary cruisers *Yale* and *Harvard* sailing from Newport News with reenforcements.

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT, *Washington, June 21, 1898.*

The honorable the SECRETARY OF THE NAVY.

SIR: I have the honor to inclose herewith copy of a telegram just sent to Major-General Shafter, Santiago de Cuba.

Very respectfully,

R. A. ALGER, *Secretary of War.*

By H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,

Washington, June 23, 1898.

Major-General SHAFTER, *Santiago de Cuba:*

Secretary of War directs such of the transports as can be spared be returned to Tampa soon as convenient under convoy of the Navy. Please cable number and

names that can be returned and time of departure. Should it be deemed best to not unload all supplies not perishable on ships, the same can be left in them until next voyage.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 2, 1898—1.21 a. m.)

ADJUTANT-GENERAL, *Washington:*

Siboney, 1.—Cable received. Colonel Humphrey has been ordered to return as many transports as possible at once.

W. R. SHAFTER,
Major-General, U. S. Volunteers, Fifth Corps.

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 24, 1898.

SIR: I have the honor to submit the following:

With the capture of Santiago de Cuba it is expected we will have several thousand Spanish prisoners, and with the capture of the second objective position, now under consideration, it is expected we will add to the number, making, it is hoped, in the aggregate at least 30,000 prisoners.

After the capture of the position next after Santiago de Cuba it would be, in my judgment, advisable to take some deep-water harbors on the northern coast of Cuba, which would be advisable, not only for our Army, but also for the Navy, as safe ports for our transports, supply ships, and naval vessels between Key West and Porto Rico. It is also important that we should select some point at which to disembark our mounted troops and light artillery, with which our Government is well supplied. We will have, in a few weeks, upward of 15,000 cavalry. This force, with the light artillery and a small body of infantry, will make a most formidable army corps with which to conduct a campaign in the interior of Cuba.

The most available point, it appears to me, would be the harbor of Neuvas, which has 28½ feet of water. From there the command could move to Puerto Principe, one of the principal cities of the Island of Cuba. Using that as a base, it could move through the rolling country, which is reported to be free from yellow fever, to Moron and Taguayabon, and thence to the Villa Clara, or, by a more southern route, from Puerto Principe to Ciego de Avila, thence to Spiritus, and thence to Villa Clara. A road could be built at the rate of 5 miles per day as that army corps marches; also, we would find two railroad bases between Puerto Principe and Villa Clara.

To move the mounted troops over from Florida to Cuba and make this march would undoubtedly consume the time up to nearly the 30th of September.

This army corps would also have the assistance of all the available forces of Garcia and Gomez, and would by that time be occupying practically two-thirds of the Island of Cuba.

If no serious force was encountered, this army corps could continue its march to the south side of Havana. If a large force of Spanish troops, sufficient to check its march was moved to the vicinity of Villa Clara, then the entire army with which we propose to invade Cuba could be moved between the forces at Villa Clara and Havana, dividing the Spanish forces and defeating them in detail.

I make this suggestion as having three advantages: First, we could employ at reasonable compensation such prisoners as desired occupation in road building; second, we could move into the interior of Cuba our large cavalry command without serious molestation; third, we would be operating during the rainy or sickly season in the most healthful parts of Cuba, practically free from yellow fever, and at the same time be occupying a large portion of the enemy's territory.

If this proposition does not meet with favor, then, after the capture of Santiago de Cuba and other places to the east, we could move the entire force to the west of Havana and conduct the campaign from the deep harbors on that coast. My judgment, however, is decidedly in favor of the first plan of campaign.

Before reaching Villa Clara we would undoubtedly have upward of 50,000 prisoners, and if we could, by judicious, humane treatment, use them in a way that would be advantageous to themselves as well as to our interests, I think it would be advisable. There would be one great danger in moving them to our own territory and establishing a large camp of prisoners, and that is that they would bring the germs of disease with them and spread them among our own people, as many Americans would have to be employed on the ships and railroads, together with the guards necessary to control them.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

The SECRETARY OF WAR.

This plan of campaign was not approved.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington, D. C., June 25, 1898, 2.45 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

Daiquiri, 23.—Had very fine voyage. Lost less than 50 animals; 6 or 8 to-day. Lost more putting them through the surf to land than on transports. Command as healthy as when we left. Eighty men sick. Only deaths, 2 men drowned in landing. Landings difficult. Coast quite similar to that in vicinity of San Francisco and covered with dense growth of bushes. Landing at Daiquiri unopposed. All points occupied by Spanish troops heavily bombarded by navy to clear them out. Sent troops toward Santiago and occupied Juraguasito, a naturally strong place, this morning, Spanish troops retreating as soon as our advance was known. Had no mounted troops or could have captured them, about 600 all told. Railroad from there in. Have cars and engine in possession. With assistance of navy disembarked 6,000 men yesterday and as many more to-day. Will get all troops off to-morrow, including light artillery and greater portion of pack train, probably all of it, with some of the wagons. Animals have to be jumped to the water and towed ashore. Had consultation with Generals Garcia, Rader, and Castillo 1 p. m. of 20th, 20 miles west of Santiago. These officers were unanimously of the opinion that landing should be made east of Santiago. I had come to the same conclusion.

General Garcia promises to join me at Juraguasito to-morrow with between three and four thousand men, who will be brought from west of Santiago by ships of the Navy to Juraguasito and there disembarked. This will give us between four and five thousand Cubans and leave one thousand with General Rabi to threaten Santiago from the west. General Kent's division is being disembarked this afternoon at Juraguasito and will be continued during the night. The assistance of the Navy has been of the greatest benefit and enthusiastically given. Without them I could not have landed in ten days, and perhaps not at all, as I believe I should have lost so many boats in the surf. At present want nothing; weather has been good; no rain on land and prospects for fair weather.

SHAFTER,
Major-General, United States Army, Commanding.

PLAYA, *June 25, 1898.*

(Received at Washington, D. C., June 25, 1898—11.57 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Daiquiri, 24.—Two or three lighters and a steam tug are an imperative necessity here. We are absolutely dependent on the little steam tug *Laura*. Without her

we could hardly get rations ashore as fast as they can be consumed. There should be no delay in furnishing these vessels.

SHAFTER,
Major-General Commanding.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 25, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

Every effort is being put forth to get you two or three lighters as asked for in your telegram just received.

H. C. CORBIN, *Adjutant-General.*

PLAYA (Received at Washington, June 25, 1898—1.17 p. m.).

ADJUTANT-GENERAL U. S. ARMY:

Daiquiri, 24.—In pushing out, to occupy good position near Sevilla to wait and intrench until supplies and artillery could be landed, the Fourteenth and Tenth Cavalry and Wood's regiment had a skirmish; enemy was driven from his position, and General Wheeler reports he now occupies their ground. Wounded: Major Bell, Captain Knox, Captain Wainwright, Lieutenant Byram, First Cavalry, and a number of men; above names only given. Lighters and steam tugs asked for this morning should be sent at once.

SHAFTER, *Commanding.*

PLAYA, *June 25, 1898.*

(Received at Washington 11.58 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Daiquiri, 24.—Further news from General Wheeler places our loss in this morning's affair about 10 killed and 40 wounded. Captain Capron, First United States Volunteer Cavalry, killed. Wounded: Major Brodie, Captain McClintock, and Lieutenant Thomas, First United States Volunteer Cavalry; Major Bell, Captain Knox, and Lieutenant Byram, First United States Cavalry; Captain Knox seriously. Captain Wainwright formerly reported wounded is uninjured; the names of the others killed and wounded not yet known. The Spaniards occupied a very strong intrenched position on a high hill, and firing lasted about an hour, and the enemy was driven from his position, which is now occupied by our troops about 1½ miles from Sevilla. The enemy has retired toward Santiago de Cuba.

SHAFTER, *Major-General.*

WAR DEPARTMENT, *June 25, 1898.*

Major-General SHAFTER, *Commanding, etc.:*

The President directs me to send his thanks to you and your army for the gallant action of yesterday, which I gladly do.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington, June 26, 1898—9.05 p. m.)

Honorable SECRETARY OF WAR, *Washington:*

Daiquiri, Cuba, June 26, 1898.—Sincere thanks to the President for his congratulations.

SHAFTER, *Major-General.*

WAR DEPARTMENT, *Washington, June 26, 1898.*

SIR: By direction of the President an expedition will be organized with the least possible delay, under the immediate command of Major-General Brooke, United States Army, consisting of three divisions taken from the troops best equipped in the First and Third Army Corps and two divisions from the Fourth Army Corps, for movement and operation against the enemy in Cuba and Porto Rico. The command under Major-General Shafter, or such part thereof as can be spared from the work now in hand, will join the foregoing expedition, and you will command the forces thus united in person.

Transports for this service will be assembled at Tampa with the least possible delay. The naval forces will furnish convoy and cooperate with you in accomplishing the object in view. You will place yourself in close touch with the senior officer of the Navy in those waters, with the view to harmonious and forceful action.

Estimates will be made by you immediately on the several staff departments for the necessary supplies and subsistence, such estimates to be submitted to the Secretary of War.

For the information of the President, copies of all orders and instructions given by you from time to time will be forwarded on the day of their issue to the Adjutant-General of the Army. Also daily reports of the state and condition of your command will be made to the Secretary of War direct.

It is important that immediate preparation be made for this movement, and, when ready, report to this Department for further instructions.

Very respectfully,

R. A. ALGER,
Secretary of War.

Maj. Gen. NELSON A. MILES,
United States Army, Washington.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 25, 1898—4.45 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War directs as many of your transports as you can spare shall return at once with the convoy to Tampa for more troops, provisions, and transportation. The convoy has been ordered to return at once for reenforcements for you. Return the wounded on ships that are able to travel, using preferably the *Harvard* and *Yale*, returning to Newport News. Advise Department of action taken.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

The dispatches concerning lighters are given in the report of the Quartermaster-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 26, 1898—11 a. m.

Major-General SHAFTER, *Playa del Este, Cuba.*

Secretary of War directs that the graves of the dead be marked, so that there will be no question of identity or recovering the bodies when they can be shipped to their friends.

H. C. CORBIN, *Adjutant-General.*

WASHINGTON, *June 26, 1898.*

Maj. Gen. W. R. SHAFTER, *Commanding United States forces in Cuba:*

In burying the dead, be sure and detail a competent officer to have a map made giving resting place of each, so that friends can find the remains of their loved ones.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington June 28, 1898—9 p. m.)

Hon. RUSSELL A. ALGER, *Secretary of War, Washington.*

Off Siboney, Cuba, June 27.—The graves of the dead are marked, so that there will be no mistake in identification. There was no embalming. Chief surgeon says it is impossible to do so. Caskets can be taken to graves, as there is a wagon road from this place to them. Steel caskets could be brought here and bodies put in them, but professional undertaker must do it. General Duffield's command ashore. I will not act hastily, though I believe I can take the place within forty-eight hours, but I fear at considerable loss of life. There is no necessity for haste, as we are growing stronger and they weaker every day. The health of the command is reported to me by the surgeon as remarkable, outside of the wounded. There are to-day less than 150 men sick; so far no wounded have died and but two men of disease since leaving Tampa. Am very glad to know that tugs and lighters are on the way. Hospital steamer *Relief* is all that we need at present. Have temporarily taken two transports for this service. Wired yesterday would like First Cavalry horses and Wood's with squadrons of those regiments left at Tampa, but they should come at once with them (I do not think the enemy could escape); besides, they can be used to gather in some small bodies of troops in the interior. Your son and young Corbin well. Your son urged me to let him go to the front as a volunteer, which I did, but have assigned him to General Duffield. No rain yet. Roads dusty.

SHAFTER,

*Major-General U. S. Volunteers, Commanding.*WAR DEPARTMENT, *Washington, June 27, 1898.*Major-General SHAFTER, *Cuba:*

Have you landed the siege guns?

(Rush.)

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington June 29, 1898, 9.37 p. m.)

SECRETARY OF WAR, *Washington:*

Siboney, 28.—I have not yet unloaded the siege guns, but will do so as soon as I can. I do not intend to take them to the front until we are stopped or need them. It is going to be a very difficult undertaking to get them up, and if attempted now would block the road. I have four light batteries at the front, and they are heavy enough to overcome anything the Spaniards have. If we have to besiege the town I will get the guns up. The advance picket is now within 2½ miles of Santiago. Officers making reconnaissances were within 1½ miles to-day and met with no opposition.

SHAFTER, *Major-General, Commanding.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington June 29, 1898, 9.40 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters Fifth Army Corps, 3 miles from Santiago, Cuba, 29.—Advance pickets within a mile and a half of Santiago. No opposition. Spaniards have evidently withdrawn to immediate vicinity of the town. Expect to put division on Caney road between that place and Santiago day after to-morrow, and will also advance on Sevilla road to San Juan River, and possibly beyond. General Garcia, with 3,000 men, will take railroad north of Santiago at the same time to prevent Pando reaching city.

SHAFTER, *Major-General, Commanding.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 30, 1898.

The honorable the SECRETARY OF WAR.

SIR: I have the honor to report, in accordance with your instructions dated June 26, 1898, that part of the First Division of the Fourth Corps left Tampa this morning for Santiago de Cuba, and the remainder will follow as soon as transports are furnished. Six light batteries, namely, two of Third, Fourth, and Fifth, respectively, left with the same transports for the same place under command of General Randolph, U. S. Volunteers.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

HEADQUARTERS OF THE ARMY,
Washington, June 30, 1898.

The honorable the SECRETARY OF WAR.

SIR: In reply to your note, I have the honor to inform you that the First Illinois Regiment, consisting of 1,200 men, sailed to-day from Port Tampa; and also that 200,000 rations in bulk were shipped.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

PLAYA, July 1, 1898.

(Received at Washington July 1, 1898—9.34 a. m.)

SECRETARY OF WAR, Washington:

Camp near Sevilla, Cuba, 1.—Action now going on, but firing only light and desultory. Began on the right near Caney—Lawton's division. He will move on the northeast part of the town of Santiago. Will keep you continually advised of progress.

SHAFTER, Major-General.

PLAYA DEL ESTE, VIA HAITI.
(Received Washington July 1, 1898.)

ADJUTANT-GENERAL'S OFFICE, U. S. ARMY, Washington:

Siboney.—Had a very heavy engagement to-day which lasted from 8 a. m. till sundown. We have carried their outer works and are now in possession of them. There is now about three-quarters of a mile of open country between my lines and city. By morning troops will be intrenched and considerable augmentation of forces will be there. General Lawton's division and General Bates's brigade, which have been engaged all day in carrying El Caney, which was accomplished at 4 p. m., will be in line and in front of Santiago during the night. I regret to say that our casualties will be above 400. Of these not many are killed.

W. R. SHAFTER, Major-General.

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington July 2, 1898—1.12 a. m.)

ADJUTANT-GENERAL, Washington:

Headquarters near Santiago de Cuba, 1.—I fear I have underestimated to-day's casualties. A large and thoroughly equipped hospital ship should be sent here at once. Chief surgeon says he has use for 40 more medical officers. Ship must bring launch and boat for conveying wounded from.

W. R. SHAFTER,
Major-General, Fifth Corps.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFER:

The Secretary of War directs me to say that hospital ship and medical officers will be sent you as soon as possible; probably leave to-day or to-morrow.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFER:

Sorry the losses are so heavy, but am confident of your ultimate complete success.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFER:

The Secretary of War suggests that probably the Navy can help you in caring for the wounded. Of course, you can utilize any of our own transports for hospital purposes.

H. C. CORBIN, *Adjutant-General.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 1, 1898.

The honorable the SECRETARY OF WAR.

SIR: As it may be several days before a convoy can reach Key West to accompany additional transports to Santiago de Cuba, and as it will be several days before a sufficient number of transports can reach Tampa to take the remainder of General Snyder's division, I think the present a favorable opportunity to take and occupy the Isle of Pines, for the following reasons:

First. It will stop the accumulation on that island of supplies for the Spaniards, and the supplies already there can be captured.

Second. It will be easily taken when, as is now the case, the attention of the enemy is turned to Havana, Santiago, and Porto Rico.

Third. It is said to have the most delightful climate in the West Indies, being entirely free from yellow fever. It can be made extremely useful for the establishment of a hospital and a camp of prisoners, and also, eventually, as a base for supplying the Cubans, and, possibly, for the cavalry operations on the main island of Cuba.

I think the one steamer now at Tampa can, with a battery of artillery and one regiment of infantry, take the island, land from two to six months' supplies, and return to Tampa inside of ten days, when the steamer would be ready to be used for any future military purpose.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

WAR DEPARTMENT, *Washington, July 1, 1898.*

Maj. Gen. NELSON A. MILES,
United States Army, Washington, D. C.

SIR: In reply to your communication of this date, that a battery of artillery and a regiment of infantry be sent to take the Isle of Pines, I have the honor to inform you that this is not approved by the President.

Very respectfully,

R. A. ALGER, *Secretary of War.*

WAR DEPARTMENT, *Washington, July 2, 1898.*

For the COMMISSARY-GENERAL OF SUBSISTENCE:

The Secretary of War directs you to arrange for a supply of food for prisoners and indigent citizens that may come under control of Maj. Gen. W. R. Shafter. To this end one large ship containing not less than 1,500 tons should be provided at the earliest possible day.

R. A. ALGER, *Secretary of War.*

KEY WEST, FLA., *July 2, 1898.*

(Received Washington 12.50 a. m.)

Captain MONTGOMERY, *Washington:*

Following just received: "Cervera has been ordered to shell the town when Americans get possession. All foreign consuls have been notified to retire at that time to place of safety outside of city." Inform General Greely.

SAWYER.

EXECUTIVE MANSION,

Washington, July 3, 1898—1.56 a. m.

Major-General SHAFER, *Playa del Este:*

(To be forwarded at once to headquarters in the field.)

The following is just received—midnight—from sources unofficial: "Cervera has been ordered to shell the town (Santiago) when Americans get possession. All foreign consuls have been notified to retire at that time to places of safety outside of city." This information may or may not be correct, but is sent for your consideration. We are awaiting with intense anxiety tidings of to-day.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—11.44 a. m.)

The SECRETARY OF WAR, *Washington:*

Camp near Sevilla, Cuba, 3.—We have the town well invested on the north and east, but with a very thin line. Upon approaching it we find it of such a character and the defenses so strong it will be impossible to carry it by storm with my present force, and I am seriously considering withdrawing about 5 miles and taking up a new position on the high ground between the San Juan River and Siboney, with our left at Sardinero, so as to get our supplies to a large extent by means of the railroad, which we can use, having engines and cars at Siboney. Our losses up to date will aggregate a thousand, but list has not yet been made. But little sickness outside of exhaustion from intense heat and exertion of the battle of the day before yesterday and the almost constant fire which is kept up on the trenches. Wagon road to the rear is kept up with some difficulty on account of rains, but I will be able to use it for the present. General Wheeler is seriously ill and will probably have to go to the rear to-day. General Young also very ill, confined to his bed. General Hawkins slightly wounded in foot during sortie enemy made last night, which was handsomely repulsed. The behavior of the regular troops was magnificent. I am urging Admiral Sampson to attempt to force the entrance of the harbor and will have a consultation with him this morning. He is coming to the front to see me. I have been unable to be out during the heat of the day for four days, but am retaining the command. General Garcia reported he holds the railroad from Santiago to San Luis and has burned a bridge and removed some rails; also that General Pando has arrived at Palma, and that the French consul with about 400 French citizens came into his line yesterday from Santiago. Have directed him to treat them with every courtesy possible.

SHAFER, *Major-General.*

WAR DEPARTMENT, *Washington, July 3, 1898—12.10 p. m.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Your first dispatch received. Of course, you can judge the situation better than we can at this end of the line. If, however, you could hold your present position, especially San Juan heights, the effect upon the country would be much better than falling back. However, we leave all that matter to you. This is only a suggestion. We shall send you reinforcements at once.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 4, 1898—1.16 a. m.)

The honorable SECRETARY OF WAR, *Washington:*

Headquarters Fifth Corps, 3.—I shall hold my present position.

SHAFTER, *Major-General.*

CUBA, VIA HAITI.

(Received at Washington July 3, 1898—2 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington:*

Camp near Santiago, 3.—Large quantities of underclothing and shoes, enough for entire army, are badly needed.

SHAFTER, *Commanding.*

WAR DEPARTMENT, *July 4, 1898.*

General SHAFTER, *Cuba:*

St. Paul leaves New York Wednesday direct for Santiago with Eighth Ohio, and underclothing, shoes, stockings, and duck suits for your whole army. How are you, Wheeler, Young, and others?

R. A. ALGER, *Secretary of War.*

ADJUTANT GENERAL'S OFFICE,
Washington, July 3, 1898.—5 p. m.

Major General SHAFTER, *Playa del Este, Cuba:*

You can have whatever reinforcements you want. Wire what additional troops you desire and they will be sent as rapidly as transports can be secured. In addition to the 2,700 troops now en route from Tampa, the *St. Paul* and *Duchess* will leave Newport News not later than Wednesday, with 3,000 troops of Garretson's brigade; the *St. Louis*, *Yale*, and *Columbia* will sail probably from Charleston, carrying 4,000 more, and others will be sent from Tampa as you may request.

H. C. CORBIN, *Adjutant General.*

WAR DEPARTMENT, *Washington, July 3, 1898.*

General SHAFTER,

Commanding United States Forces, Cuba:

We are forwarding reinforcements to you this week. How is your health? Do you think that some one should come to relieve you? Are you going to be able to stand through? What do you think? Be very careful of yourself.

R. A. ALGER, *Secretary of War.*

WAR DEPARTMENT, *Washington, July 3, 1898.*

Major-General SHAFTER,

Commanding United States Forces, Cuba:

I waited with the President until 4 o'clock this morning for news from you relative to Saturday's battle. Not a word was received, nor has there been up to this hour,

11 a. m., except an account of the battle of Friday, upon which I congratulate you most heartily. I wish hereafter that you would interrupt all messages that are being sent for the Associated Press and others, and make report at the close of each day, or during the day, if there is anything of special importance at once. The *Relief* left New York yesterday. She has seventeen surgeons on board, and will come to you as quickly as possible.

R. A. ALGER, *Secretary of War*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—7 p. m.)

SECRETARY WAR, *Washington*:

Camp near Santiago, 3.—Lieutenant Allen, Second Cavalry, is just in from my extreme right, which is on the railroad running north from Santiago and which overlooks the entire bay. Lieutenant Allen states that Cervera's fleet was in full view until nearly 10 o'clock this morning, when it proceeded down the bay, and shortly afterwards heavy firing was heard. Duffield, at Siboney, has just telephoned me that Captain Cotton, of the *Harvard*, just sent him word that Admiral Sampson had signaled Cervera had come out and had escaped and that he was in pursuit. The *Harvard* immediately left. The French consul informed General Garcia, into whose lines he went yesterday, that Admiral Cervera had stated that he would run out at 10 o'clock this a. m., and that was the hour Allen witnessed his departure. Cervera told such consul it was better to die fighting than blow up ships in harbor.

SHAFTER, *Commanding*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—7.31 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, *Washington*:

Camp near Santiago, Cuba, 3.—Early this morning I sent in a demand for immediate surrender of Santiago, threatening bombardment to-morrow. Perfect quiet on lines for one hour. From news just received of escape of fleet am satisfied place will be surrendered.

SHAFTER, *Commanding*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington, July 4, 1898.—12.15 a. m.)

General ALGER, *Washington*:

Headquarters Fifth Army Corps, Cuba, 3.—Did not telegraph, as I was too busy looking after things that had to be attended to at once and did not wish to send any news that was not fully confirmed; besides, I was too much excited myself. The Spanish fleet left the harbor this morning and is reported practically destroyed. I demanded surrender of the city at 10 o'clock to-day. At this hour, 4.30 p. m., no reply has been received; perfect quiet along the line; situation has been precarious on account of difficulties of supplying command with food, and tremendous fighting capabilities shown by the enemy from his almost impregnable position.

SHAFTER, *Major-General*.

PLAYA, July 4, 1898.

(Received Washington July 4, 1898—9.30 a. m.)

The ADJUTANT-GENERAL'S OFFICE, U. S. ARMY, *Washington*:

Headquarters Fifth Army Corps, near Santiago. Your telegram inquiring about my health just received. I am still very much exhausted. Eating a little this p. m. for the first time in four days. The good news has inspired everybody. When the news of the disaster of the Spanish fleet reached the front, which was during the

period of truce, a regimental band that had managed to keep its instruments on the line, played "The Star-Spangled Banner" and "There will be a hot time in the old town to-night," men cheering from one end of the line to the other. Officers and men, without even shelter tents, have been soaking for five days in the afternoon rains, but all are happy.

SHAFTER,
Major-General, U. S. A.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 4, 1898—5.22 a. m.)

Hon. R. A. ALGER, *Secretary of War, Washington:*

Headquarters Fifth Army Corps, 3.—The following is my demand for the surrender of the city of Santiago:

"HEADQUARTERS UNITED STATES FORCES,
Near San Juan River, Cuba, July 3, 1898—8.30 a. m.

"To the Commanding General of the Spanish Forces, Santiago de Cuba:

"SIR: I shall be obliged unless you surrender to shell Santiago de Cuba.

"Please inform the citizens of foreign countries and all women and children that they should leave the city before 10 o'clock to-morrow morning.

"Very respectfully, your obedient servant,

"W. R. SHAFTER,
Major-General, U. S. Army."

Following is the Spanish reply, with which Colonel Dorst has just returned, at 6.30 p. m.:

"SANTIAGO DE CUBA, July 3, 1898—3 p. m.

"His Excellency the GENERAL COMMANDING FORCES OF UNITED STATES NEAR
SAN JUAN RIVER:

"SIR: I have the honor to reply to your communication of to-day, written at 8.30 a. m. and received at 1 p. m., demanding surrender of this city, on the contrary case announcing to me that you will bombard this city and that I advise the foreign women and children that they must leave the city before 10 o'clock to-morrow morning. It is my duty to say to you that this city will not surrender, and that I will inform the foreign consuls and inhabitants of the contents of your message.

"Very respectfully,

"JOSE TORAL,
Commander in Chief, Fourth Corps."

The British, Portuguese, Chinese, and Norwegian consuls have come to my line with Colonel Dorst. They ask if noncombatants can occupy the town of Caney and railroad points, and ask until 10 o'clock of 5th instant before the city is fired on. They claim that there are between 15,000 and 20,000 people, many of them old, who will leave. They ask if I can supply them with food, which I can not do for want of transportation to Caney, which is 15 miles from my landing. The following is my reply:

SANTIAGO DE CUBA, July 3, 1898.

The COMMANDING GENERAL, SPANISH FORCES:

In consideration of the request of the consul officers in your city, award the delay in carrying out my intention to fire on the city, and in the interest of the poor women and children, who will suffer very greatly by their hasty and enforced departure from the city, I have the honor to announce that I will delay such action solely in their interest until noon on the 5th, provided during the interval your forces make no demonstration whatever upon those of my own.

I am with great respect, your obedient servant,

W. R. SHAFTER,
Major-General, U. S. Volunteers.

I do not know that these extreme measures which I have threatened be justifiable under the circumstances, and I submit the matter for the action of the President. The little town of Caney will not hold one thousand people and great suffering will be occasioned to our friends, as we must regard the people referred to; and it is now filled with dead and wounded, the dead still unburied. The consuls tell Dorst that there are not to exceed 5,000 troops in the city. I can hold my present line and starve them out, letting the noncombatants come out leisurely as they run out of food, and, will probably be able to give such as are forced out by hunger, food to keep them alive. I await your orders.

W. R. SHAFTER,
Major-General, U. S. Volunteers.

WAR DEPARTMENT, *Washington, July 4, 1898—6.10 a. m.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Telegram containing demand made by you for surrender of Santiago, the Spanish commander's reply thereto, and your reply to him received. While you would be justified in beginning to shell Santiago at expiration of time limit set by you, still under the conditions named in your dispatch and for humanity's sake the postponement of the bombardment to noon of July 5th is approved. Telegraph me this evening just how matters stand. Have you recent news of Hobson?

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 4, 1898—3.30 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Being on the ground and knowing all the conditions, the Secretary of War directs you use your own judgment as to how and when you will take the city of Santiago, but for manifest reasons it should be accomplished as speedily as possible.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT,
Washington, July 4, 1898.

General SHAFTER, *Cuba:*

My telegram to-day concerning your future action was not intended in any way to direct your movements. You are the best judge of the situation and all the country has every faith in your wisdom. How are you physically, anyway?

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington July 4, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

After conference with the President and the Secretary of War I am directed to say your continued illness brings sorrow and anxiety. In case you are disabled General Wheeler would, of course, succeed to command. His illness, which we also regret, is feared to be so serious as to prevent his assuming command. You must determine whether your condition is such as to require you to relinquish command. If so, and General Wheeler is disabled, you will order the next general officer in rank for duty to succeed you and to take up the work in hand. It is not expected that our forces will make assault until they are ready.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI,

(Received Washington, July 6, 1898—5.40 a. m.)

ADJUTANT-GENERAL, *Washington* :

Camp near Santiago, Cuba, 5.—I am not at present so much ill as exhausted from the intense strain that has been on me for last two months. I am also suffering from an attack of gout, which prevents me from moving about. I have, however, the whole business in my hand, and am managing it through able staff officers. When I do have to give up I will of course follow your order, but I hope to be better soon.

SHAFTER,

Major-General, Commanding.

PLAYA DEL ESTE.

(Received at Washington July 6, 1898—4.13 a.m.)

The ADJUTANT-GENERAL, *Washington* :

Camp near Santiago, 5.—I am just in receipt of a letter from General Soul agreeing to exchange Hobson and men here; to make exchange in the morning. Yesterday he refused my proposition to exchange.

SHAFTER, *Major-General.*

PLAYA DEL ESTE, VIA HAITI,

(Received at Washington July 7, 1898—7 a. m.)

SECRETARY OF WAR, *Washington* :

Headquarters Fifth Army Corps, 6.—Lieutenant Hobson and all his men have just been received safely in exchange for Spanish officer and prisoners taken by us. All are in good health except two seamen convalescent from remittent fever.

SHAFTER, *Major-General Commanding.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 4, 1898—6.57 a. m.)

ADJUTANT-GENERAL'S OFFICE, *Washington* :

Headquarters Fifth Army Corps, Santiago, 3.—To-night my lines completely surround the town from the bay on the north of the city to a point on the San Juan River on the south. The enemy holds from the west bend of the San Juan River at its mouth up the railroad to the city. General Pando, I find to-night, is some distance away and will not get into Santiago.

SHAFTER, *Commanding.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 4, 1898, 10.10 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington* :

Camp near Santiago, Cuba, 4.—When am I to expect troops from Tampa? Report just received Pando entered city last night by Cobre road with 5,000 from Holguin. Garcia was especially charged with blockading that road.

SHAFTER, *Commanding.*

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 4, 1898.*General SHAFTER, *Playa del Este, Cuba*:

Reinforcements are being hurried to you. Randolph leaves Key West to-night with fast convoy. He has about 3,500 men, including the six light batteries from Tampa. The *St. Paul* will leave New York Wednesday evening with the Eighth

Ohio Volunteers. The *Yale* and *Harvard* will take all the troops they can carry, sailing from Charleston. The day and hour of their departure will be communicated to you as soon as known, probably the 6th.

By command *Adjutant-General Miles*,

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 6, 1898, 7.58 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

7.29 a. m., Siboney 5.—I, yesterday, offered to return to the commanding officer of the Spanish forces a number of wounded officers and men left lying on the battlefield at Caney, the officers to give their paroles and the senior officer for the men. Did this, first, to get rid of the care of them, and second to show the Spanish troops they were not to be killed by us as they had been told by their officers would be the case. This morning I sent Lieutenant Brooke and Dr. Goodfellow with some ambulances to Caney for the wounded and from there conduct them as far as they were to go. Four officers and 24 men were loaded and driven into the inner line of defenses near the city. Large numbers of officers and soldiers gathered about the ambulances and assisted in removing the men. Two companies of troops were drawn up on either side of the road and arms were presented to the officers and their mounted escort. All of the officers gave their individual parole and desired to return. The men did not wish to go back, but were required to do so. I have just received a letter through a flag of truce from the general of the lines thanking me courteously for giving them their wounded. I am satisfied that it will tend more to create dissatisfaction in the ranks of the enemy than anything I could have done, as the soldiers said we were fighting the church and were going to kill them. There has not been a shot fired on the line to-day. I am simply making my lines stronger and hanging on. I shall expect many deserters, as a number of officers came out with the refugees last night. One of them a colonel and two captains who fought us on the 1st.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 5, 1898, 12.53 a. m.)

ADJUTANT-GENERAL, *Washington*:

In the field, near San Juan River, 4.—I regard it as necessary that the navy force an entrance into the harbor of Santiago not later than the 6th instant, and assist in the capture of that place. If they do, I believe the place will surrender without further sacrifice of life.

SHAFTER, *Major-General*.

Please acknowledge receipt to me.

ALLEN.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 5, 1898, 1.10 a. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters Fifth Army Corps, camp near San Juan River, 4.—If Sampson will force an entrance with all his fleet to the upper bay of Santiago, we can take the city within a few hours. Under these conditions I believe the town will surrender. If the army is to take the place I want 15,000 troops speedily, and it is not certain that they can be landed, as it is getting stormy. Sure and speedy way is through the bay. Am now in position to do my part.

SHAFTER, *Major-General*.

Please acknowledge receipt to me.

ALLEN.

PLAYA DEL ESTE, VIA HAITI,
(Received at Washington July 5, 1898, 7 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington* :

1.07 p. m. Headquarters United States forces near San Juan River, Cuba, 4.—I regard as necessary that the navy force an entrance into the harbor Santiago not later than 6th instant, and assist in the capture of the place. If they do, I believe the place will surrender without further sacrifice of life.

SHAFTER,
Major-General, U. S. Volunteers.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 5, 1898, 11.20 a. m.

Major-General SHAFTER, *Playa del Este, Cuba* :

Secretary of War instructs me to say that the President directs that you confer with Admiral Sampson at once for cooperation in taking Santiago. After the fullest exchange of views, you will agree upon the time and manner of attack.

By command Major-General MILES :

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 5, 1898—3.10 p. m.

Major-General SHAFTER, *Playa del Este, Cuba* :

Your telegram this date has been submitted to the President. After consideration, the Secretary of War directs me to say that it is evident from your several reports that you do not consider your force strong enough to make a successful assault upon the Spanish army intrenched in Santiago. This being the case, it is the part of wisdom to await reinforcements, the embarkation of which you have already been advised. As you have already been advised, you must be judge of the time and manner of assault. The President has directed that you and Admiral Sampson have a conference and determine a course of cooperation best calculated to secure desired results with least sacrifice.

By command Major-General Miles :

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 6, 1898—2.30 p. m.

Maj. Gen. W. R. SHAFTER, *Playa del Este, Cuba* :

The Secretary of War is anxious to know what prospect there is of breaking through the mine. He would be very glad, even with a delay, to have cooperation of the navy, thus saving many lives. The *St. Paul*, sailing from New York to-day, has nearly everything you asked for. The lighters, sent a long time since, ought to be with you by this time. We are trying to make arrangements for light-draft steam vessels for carrying orders, etc., to be sent you as quickly as possible. Can you not procure from the navy steam launches to aid you in landing supplies and carrying dispatches while we are getting crafts of our own for that object. It is expected you will communicate freely, setting forth any assistance that can be given you in the way of supplies of any kind.

By command Major-General Miles :

H. C. CORBIN, *Adjutant-General.*

PLAYA, July 7, 1898.

(Received at Washington 4.50 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Had consultation with Sampson. Navy disinclined to force entrance except as a last resource. They will bombard the city, which is within easy range of their big guns, beginning at noon of the 9th, and if that is not effective after twenty-four hours will then force entrance with some of the smaller ships. I still have hopes they will surrender. Made a second demand on them yesterday, calling attention to the changed conditions because of the loss of the Spanish fleet, and offering to give them time to consult their home Government, which General Toral has accepted, asking that British consul return to the city with employees of the Cable Company, Ltd. Permitted him to do so. Meanwhile I hope my reinforcements will arrive. Not one in sight yet except the 200 recruits for the Second Infantry, who came a week ago. As a last resort I will try running in transports. I do not consider my force sufficient to warrant an assault on the city, though I believe it would be successful, but at a fearful loss, of course. It would be criminal to hope for the end to be gained, which is merely the capture of a few thousand men, and when we are seen we are getting them by siege. Nothing has yet been seen of tugs, lighters, and launches promised ten days ago.

SHAFTER, *Major-General, Commanding.*

PLAYA DEL ESTE, July 7, 1898.

(Received at Washington 8.35 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Headquarters Fifth Army Corps, near Santiago, Cuba.—The hospital ship *Relief* just arrived with a large amount of medical stores. Want the teamsters, stevedores, and steam lighters, as wired you, and the sooner they can be gotten here the better.

W. R. SHAFTER, *Major-General.*ADJUTANT-GENERAL'S OFFICE, *Washington, July 7, 1898.*Major-General SHAFTER, *Playa del Este, Cuba*:

One tug should reach you to-day. A large, powerful one leaves New Orleans to-night. Fifty laborers went on the *St. Paul*, leaving New York to-day, and stevedores are on boats going to you.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 8, 1898—11 p. m.*Maj. Gen. W. R. SHAFTER, *Playa del Este, Cuba*:

All the lighters that started for you on the 27th June, which it was supposed had reached you ere this, we now learn have been lost in the sea. Every possible effort is being put forth to get others under way, and it is hoped it will be accomplished some time between this and to-morrow.

H. C. CORBIN, *Adjutant-General.*

The following telegram from Major-General Shafter was in answer to a telegram sent him stating that his men were reported without food:

PLAYA.

(Received at Washington July 9, 1898—10.54 a. m.)

Hon. R. A. ALGER, *Washington*:

Camp near Santiago, Cuba, 8.—On the day of the battle men piled up and left their blanket rolls, and many of them their haversacks, and it was not until the

next night they were able to get them. It is possible that some of them may have been hungry, but on the night of the battle pack trains were sent and food distributed along the line. They were without tobacco for several days, as it was only by the greatest exertion that coffee, sugar, meat, and bread could be gotten; out of these they had full rations, except for twenty-four hours, when there was no coffee. I will have careful inquiry made to see if in any isolated cases men were without food for forty-eight hours, and the cause of it. No such cases have been reported to these headquarters. I learned to-night that the supply of tobacco is nearly exhausted.

SHAFTER, *Major-General.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 6, 1898.

The honorable the SECRETARY OF WAR:

SIR: Referring to my letter of the 29th ultimo, I have the honor to report that I expect to leave Washington not later than to-morrow night.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 8, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War directs me to inform you that General Miles left here at 10.40 last night for Santiago, but with instructions not to in any manner supersede you as commander of the forces in the field near Santiago so long as you are able for duty.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898.

General SHAFTER, *Playa del Este, Cuba:*

Information from the Secretary Navy is that the *Columbia* and *Yale* sailed from Charleston, S. C., midnight of the 8th, for Santiago, General Miles being aboard the *Yale*.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, via HAITI.

(Received at Washington July 11, 1898—7.49 p. m.)

SECRETARY OF WAR, *Washington:*

Siboney, Cuba, 11.—Arrived at noon. Had consultation with Admiral Sampson and General Shafter by telephone. Troops from Tampa, New York, and Charleston are arriving and move to the front. The line of investment is being extended.

MILES.

NAVY DEPARTMENT, *July 12, 1898.*

Columbia and *Yale*, with General Miles and United States troops on board, arrived off Santiago last evening.

Respectfully,

A. L. CROWNINSHIELD,
Chief of Bureau.

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 8, 1898—3.10 p. m.*Major-General SHAFER, *Playa del Este, Cuba:*

Do you recommend the arming of Henry's division, or any other volunteers of your command, with Krag-Jorgensen rifles? We have 1,800,000 rounds of ammunition at Tampa and manufacture 250,000 per day, so that you may know what the supply may be. What are your wishes?

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA. (Received at Washington July 9, 1898—9.56 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters Fifth Army Corps.—By all means arm in field Henry's division and the volunteer regiments now here with the Krag-Jorgensen rifle. The use of black powder instantly brought volleys against regiments using Springfield, and was very demoralizing on those regiments.

SHAFER, *Major-General, Commanding.*PLAYA, via HAITI, *July 7, 1898.*

(Received Washington 3.32 p. m.)

Hon. R. A. ALGER, *Secretary of War, Washington:*

Under date of 3d instant in long dispatch you say that "nothing has been heard except one account of battle yesterday, upon which I can congratulate you most heartily." Anything further of a congratulatory nature from either the President or yourself failed to reach me, but upon your dispatch of this morning I will announce the President's and your congratulations to the army on its good work of the 1st instant.

SHAFER, *Major-General.*

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 8, 1898.*General SHAFER, *Playa del Este, Cuba:*

The telegram which it appears you did not receive reads as follows: "The President directs me to say you have the gratitude and thanks of the nation for the brilliant and effective work of your noble army on Friday, July 1. The steady valor and heroism of officers and men thrill the American people with pride. The country mourns the brave men who fell in battle. They have added new names to our roll of heroes.

"R. A. ALGER, *Secretary of War.*"H. C. CORBIN, *Adjutant-General.*

[Memorandum for the War Department.]

NAVY DEPARTMENT, *Washington, July 9, 1898.*

A telegram received last night from Admiral Sampson states that the lighter and float taken to Santiago by the *Fern* and *Niagara*, for the use of the army in landing stores, were received on July 5.

JOHN D. LONG, *Secretary.*

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 9, 1898.*Major-General SHAFER, *Playa del Este, Cuba:*

Navy Department just reports the arrival of one 250-ton double-deck lighter, one open lighter, and one tug at Santiago yesterday. These are for your use.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 10, 1898—1.30 a. m.)

ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, Cuba, 9.—If two tugs and lighters have arrived, Navy must have them. They have not, up to sundown, reported at Siboney or Daiquiri.

SHAFTER, *Major-General*.WAR DEPARTMENT, *Washington, July 10, 1898.*

Col. JAMES ALLEN,

Signal Corps, Guantanamo (via Hayti), Cuba:

A naval tug and two lighters sent from Key West for use of General Shafter. If at Guantanamo, ask naval authorities to send them to General Shafter. He needs them badly. Lighters have been replaced to Navy at Key West. Answer direct to me.

LUDINGTON, *Quartermaster-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 10, 1898.)

ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, Cuba, 9.—I am much better. Riding all day. Our lines very strong. Gap on right not yet filled, but will be to-morrow, when Randolph's troops front. Unloading to-day.

SHAFTER, *Major-General*.PLAYA DEL ESTE, VIA HAITI, *July 10, 1898.*

(Received at Washington 6.53 p. m.)

Hon. R. A. ALGER, *Washington, D. C.:*

Headquarters War, Santiago, 10.—Thanks for kind message. I think I will satisfy you. Was over anxious yesterday as to health of command, which at present is excellent, but don't like outlook at Siboney. Dr. Pope wired Surgeon-General.

SHAFTER, *Major-General*.WAR DEPARTMENT, *July 10, 1898.*General SHAFTER, *Playa del Este, Cuba:*

Of course you will, as far as possible, prevent anyone from entering any house on account of exposure.

R. A. ALGER,
Secretary of War.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 11, 1898—5 a. m.)

Hon. R. A. ALGER, *Secretary of War, Washington*:

Camp near Santiago, 10.—Hard work is telling on teamsters and packers. Nearly 50 per cent sick. Teams have got to be kept going; will do it with details of soldiers if teamsters can not be sent here.

SHAFTER, *Major-General*.ADJUTANT-GENERAL'S OFFICE,
*Washington, July 11, 1898—10 a. m.*Major-General SHAFTER, *Playa del Este, Cuba.*

There were 50 stevedores sent on the *St. Paul*. Four hundred laborers should have left Jacksonville yesterday afternoon. Others will be forwarded as rapidly as they

can be employed and furnished transportation. This in order to relieve the sick teamsters and laborers as far as possible.

H. C. CORBIN, *Adjutant-General.*

PLAYA. (Received at Washington July 9, 1898—11.18 a. m.)

ADJUTANT-GENERAL, *Washington:*

Camp near Santiago, 8.—Have been visiting the lines all day; I regard them as impregnable against any force the enemy can send. The truce expires at 12 to-morrow, and I expect soon after firing will begin. No assault will be made of advance from our present lines until the Navy comes into the bay. I hope to be able by fire from intrenchments to drive the enemy inside the city.

SHAFTER, *Major-General.*

PLAYA. (Received at Washington July 9, 1898—1 p. m.)

R. A. ALGER, *Secretary of War, Washington:*

Camp near Santiago, Cuba, July 8.—I am just in receipt of a letter from the commandant of Santiago de Cuba, who proposes to march out of the city with arms and baggage and not to be molested until he reaches Holguin, surrendering to the American forces the territory now occupied by him. I have replied that while I have submitted the matter to my home Government I did not think his terms would be accepted. He makes this proposition to avoid danger to the city and useless shedding of blood. This will give me another day to get up troops from Siboney, the first transports of reinforcements having just arrived. In my opinion they will have to surrender unconditionally very soon after I open fire upon them.

W. R. SHAFTER,
Major-General, U. S. Army.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898—1.50 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Your telegram setting forth terms in which the enemy will evacuate Santiago has been submitted to the President by the Secretary of War, who instructs me to say that you will accept nothing but an unconditional surrender and should take extra precautions to prevent the enemy's escape.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 9, 1898—9 p. m.)

Hon. SECRETARY OF WAR, *Washington:*

Headquarters Fifth Army Corps, near Santiago.—I forwarded General Toral's proposition to evacuate the town this morning without consulting anyone. Since then I have seen the general officers commanding divisions, who agree with me that it should be accepted. First, it releases at once the harbor. Second, it permits the return of thousands of women, children, and old men, who have left the town fearing bombardment and who are now suffering where they are, though I am doing my best to supply them with food. Third, it saves the great destruction of property which a bombardment would entail, most of which belongs to Cubans and foreign residents. Fourth, it at once relieves the command, while it is in good health, for operations elsewhere. There are now three cases of yellow fever at Siboney in Michigan regiment, and if it gets started no one knows where it will stop. We will

lose by this simply some prisoners we do not want and the arms they carry. I believe many of them will desert and return to our lines. I was told by sentinel who deserted last night that 200 men wanted to come, but were afraid our men would fire upon them.

W. R. SHAFTER, *General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898—11.15 p. m.

Major-General SHAFTER, *Playa del Este, Cuba*:

In reply to your telegram recommending terms of evacuation as proposed by the Spanish commander, after careful consideration by the President and Secretary of War, I am directed to say that you have repeatedly been advised that you would not be expected to make an assault upon the enemy at Santiago until you were prepared to do the work thoroughly. When you are ready this will be done. Your telegram of this morning said your position was impregnable and that you believed the enemy would yet surrender unconditionally. You have also assured us that you could force their surrender by cutting off the supplies. Under these circumstances your message recommending that Spanish troops be permitted to evacuate and proceed without molestation to Holguin is a great surprise, and is not approved. The responsibility of destruction and distress to the inhabitants rests entirely with the Spanish commander. The Secretary of War orders that when you are strong enough to destroy the enemy and take Santiago that you do it. If you have not force enough it will be dispatched to you at the earliest moment practicable. Reinforcements are on the way, of which you have already been advised. In the meantime nothing is lost by holding the position you now have and which you regard as impregnable. Acknowledge receipt.

By order the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.
(Received Washington July 10, 1898—2.50 p. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters near Santiago, Cuba, 10.—Telegram of 9th regards to evacuation of Spanish troops received. My position is impregnable against any attack the enemy can bring against me, but I have not yet enough troops to entirely surround the town. The Cuban forces are not to be depended upon for severe fighting. Instructions of the War Department will be carried out to the letter.

SHAFTER, *Major-General*.

SIBONEY, VIA HAITI.
(Received Washington July 10, 1898—5.55 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Headquarters Fifth Army Corps, 10.—I have just received letter from General Toral declining unconditional surrender. Bombardment by the Army and Navy will begin at as near 4 p. m. to-day as possible.

SHAFTER, *Major-General*.

WAR DEPARTMENT, *July 10, 1898*.

General SHAFTER, *Playa del Este, Santiago, Cuba*:

Should the Spaniards surrender unconditionally and wish to return to Spain, they will be sent back direct at the expense of the United States Government.

R. A. ALGER,
Secretary of War.

HEADQUARTERS FIFTH ARMY CORPS,
Camp near Santiago de Cuba, July 11, 1898.

SIR: With the largely increased forces which have come to me, and the fact that I have your line of retreat securely in my hands, the time seems fitting that I should again demand of your excellency the surrender of Santiago and of your excellency's army. I am authorized to state that should your excellency so desire the Government of the United States will transport the entire command of your excellency to Spain.

I have the honor to be, very respectfully, your obedient servant,

WM. R. SHAFTER,
Major-General Commanding.

His Excellency, COMMANDER IN CHIEF OF THE SPANISH FORCES,
Santiago de Cuba.

SANTIAGO DE CUBA, *July 11, 1898.*

SIR: I have the honor to advise your eminence that your communication of this date is received, and in reply desire to confirm that which I said in my former communication; also to advise you that I have communicated your proposition to the general in chief.

Reiterating my sentiments, I am,

Very respectfully, your servant,

JOSÉ TORAL,
Commander in Chief Fourth Corps, and Military Governor of Santiago.

His Excellency, COMMANDER IN CHIEF OF THE UNITED STATES FORCES,
In Camp at the San Juan.

PLAYA DEL ESTE, VIA HAITI,
 (Received Washington July 11, 1898—12.01 a. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters Fifth Corps, 10.—Enemy opened fire a few minutes past 4 with light guns which were soon silenced by ours. Very little musketry firing and the enemy kept entirely in their trenches. Three men slightly wounded. Will have considerable occasion to force to-morrow, enough to completely block all the roads on the northwest. I am quite well. General Garcia reports enemy evacuated little town called Doscaminos, about 3 miles from Santiago and near the bay. Garcia's force now occupies it. Everything is looking well and men feeling well. Navy fired few shots from the sea near Aguadores; effect was not perceptible.

SHAFTER, *Major-General.*

PLAYA, VIA HAITI.
 (Received at Washington July 12, 1898—9.30 a. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters Fifth Army Corps.—It has been quiet to-day; but little fighting. A flag of truce up since 2 o'clock considering proposition for surrendering now that I have town surrounded on the north. Line was completed at 5 p. m. by General Ludlow right down to the bay. The line is rather thin, but will have it strengthened in the morning by General Henry, who has just arrived at headquarters. Only three or four casualties; no one killed so far as I can learn. Expect to have two of the new batteries in position to-morrow. Great deal of suffering among the people who have gone out of Santiago. Am doing my best to relieve it, but not entirely successful,

SHAFTER, *Major-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 13, 1898—2 a. m.)

ADJUTANT-GENERAL, *Washington*:

The following communication has just been received from the Spanish commander in Santiago:

"SANTIAGO DE CUBA, *July 12.*

"ESTEMED GENERAL OF THE AMERICAN FORCES.

"SIR: I have the honor to insist upon my proposition to evacuate the Plaza and the territory of the division of Cuba under conditions hereafter stated for the Spanish arms, trusting that your chivalry and sentiment as a soldier will make you appreciate exactly the situation, and therefore must a solution be found that leaves the honor of my troops intact; otherwise you will comprehend that I shall see myself obliged to now make defense as far as my strength will permit. I call the attention of your eminence to the advance of your troops by railroad, the movement of which I suppose you are ignorant, and I take that you will kindly order their return to their position during the time that the armistice is in existence.

"Very respectfully,

"JOSÉ TORAL, *Commander in Chief, etc."*

Will any modification of the recent order be permitted? And as I have been perfectly satisfied that he can be taken, but if he fights, as we have reason to believe he may, it will be at fearful cost of life, and to stay here with disease threatened may be as great loss from the cause. The suffering of the people who left the town is intense. I can only supply food enough to keep them from starving, and if blue rains continue I do not know how long I can do that.

SHAFTER, *Major-General.*WASHINGTON, D. C., *July 13, 1898—2.14 a. m.*Major-General SHAFTER, *Before Santiago, Cuba, Playa del Este*:

Telegram just received. No modification of former order permitting the Spanish army evacuating Santiago under such conditions as proposed by Toral will be made. The Secretary of the Navy will be consulted at once concerning the ordering of Sampson to assist you.

R. A. ALGER, *Secretary of War.*

PLAYA. (Received Washington July 13, 1898—2.12 p. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters, near Santiago, 13.—Your telegram saying no modification of orders allowed just received. Have had an interview of an hour and a half with General Toral and have extended truce until noon to-morrow. Told him that his surrender only will be considered, and that he was without hope of escape and had no right to continue the fight. I think it made a strong impression on him and hope for his surrender. If he refuses, I will open on him at 12 noon, to-morrow, with every gun I have and have the assistance of the Navy. Are ready to bombard the city with 13-inch shells. There is a good deal of nervousness throughout the Army on account of yellow fever, which is among us, certainly. Twenty-nine new cases yesterday, and probably 150 all told. Whatever happens, one or two immune regiments should be sent here to act as hospital guards and garrison for the town.

W. R. SHAFTER.

WAR DEPARTMENT, *July 13, 1898—4.30 p. m.*Major-General SHAFTER, *Playa del Este, Cuba*:

Your message announcing that unless your terms are accepted before noon to-morrow you will make an assault all along the line is received and approved. God bless you and your heroic army.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI,

(Received Washington July 13, 1898—2.40 a. m.)

SECRETARY OF WAR, *Washington*:

Camp near Santiago, 12.—The Spanish general to-day asked some conclusion be reached that shall save his honor. Offers to surrender Santiago province, force, batteries, munitions of war, etc., all except the men and small arms. Under ordinary circumstances would not advise acceptance, but this is a great concession and would avoid assaulting intrenched lines with every device for protecting his men and inflicting heavy loss on assaulting lines. The siege may last many weeks. They have the provisions for two months. There are 20,000 starving people who have fled the city and were not allowed to take any food. The fortitude and heroism of the army has been unsurpassed, and, under the circumstances, I concur with General Shafter and the major-generals, and would request that discretion be granted as to terms, in view of the importance of other immediate operations in which both this part of the army and navy will participate. The very serious part of this situation is that there are 100 cases of yellow fever in this command, and the opinion of the surgeon that it will spread rapidly.

MILES, *Major-General, Commanding.*WASHINGTON, D. C., *July 13, 1898.*

Major-General MILES,

Camp near Santiago, Playa del Este, Cuba:

You may accept surrender by granting parole to officers and men, the officers retaining their side arms. The officers and men after parole to be permitted to return to Spain, the United States assisting. If not accepted, then assault, unless in your judgment an assault would fail. Consult with Sampson, and pursue such course as to the assault as you jointly agree upon. Matter should now be settled promptly.

R. A. ALGER, *Secretary of War.*

(See dispatch to General Shafter, July 10.)

WAR DEPARTMENT,
Washington, July 13, 1898.

The honorable the SECRETARY OF THE NAVY:

SIR: I have the honor to request that you order the fleet off Santiago to at once force its way into the bay, if possible, to aid the army in the capture of Santiago and the Spanish army defending it.

The special reasons for immediate action are: First, the very heavy rains that are falling almost continually have made the roads nearly impassable, and threaten to cut off our supply of provisions for the army in the trenches altogether; second, the rains are making the holding of our lines almost impossible, as the trenches are filled with water; third, the lives of our men are in great danger from yellow fever, which has broken out among our troops and is spreading rapidly; and fourth, the character of the works of the enemy is such that to take them by assault would be a terrible sacrifice of life.

These conditions, it is believed by the major-general commanding, would be changed were the navy in the bay to cooperate with the army, and the capture of the city and the Spanish army thus made comparatively easy matter.

Very respectfully,

R. A. ALGER, *Secretary of War.*NAVY DEPARTMENT, *Washington, July 14, 1898.*

The honorable the SECRETARY OF WAR:

SIR: I have the honor to acknowledge the receipt of your communication of the 13th instant, requesting orders be issued by this Department for the fleet off Santiago

to force its way into the bay, if possible, to aid the Army in the capture of Santiago and the Spanish army defending it.

Very respectfully,

JOHN D. LONG, *Secretary.*

PLAYA. (Received Washington July 14, 1898—11.05 a. m.)

ADJUTANT GENERAL U. S. ARMY, *Washington:*

Camp near Santiago, 14.—Fifth Army Corps have this moment received communication from General Toral asking the commissioners be appointed to arrange terms of surrender on basis of returning to Spain. Has appointed his commissioners. Have not surrendered, however. How soon can the Spanish army be sent back?

W. R. SHAFTER,
Major-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 14, 1898—12 noon.

General SHAFTER, *Playa del Este, Cuba:*

Your message referring to General Toral's last communication is received. The assistance of the United States to return the Spanish prisoners to Spain is a matter of detail which will require time, but will be done promptly and with the least possible delay. That can be arranged after surrender, which should be immediate, on lines of instruction already given you.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA. (Received Washington July 14, 1898—2.04 p. m.)

ADJUTANT-GENERAL, *Washington:*

Have just returned from interview with General Toral. He agrees to surrender upon the basis of being returned to Spain. This proposition embraces all of eastern Cuba from Acerraderos on the south to Sagua on the north, via Palma, with practically the Fourth Army Corps. Commissioners meet this afternoon at 2.30 to definitely arrange the terms.

W. R. SHAFTER, *Major-General.*

EXECUTIVE MANSION,
Washington, July 14, 1898—2.49 p. m.

Major-General SHAFTER, *Camp before Santiago, Cuba:*

Telegram saying General Toral agrees to surrender received. Conclusion awaited with much interest.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA, *July 13, 1898.* (Received Washington 1.40 p. m.)

SECRETARY OF WAR, *Washington:*

At a meeting between the lines, at which Generals Shafter and Wheeler and Spanish General Toral were present, the latter claimed that he is unable to act without authority of his Government, but has received authority to withdraw and surrender harbor ports, munitions of war, and eastern portion of Cuba. He urgently requests until to-morrow noon to receive answer from his Government regarding offer of our Government to send his forces to Spain, which was granted.

MILES, *Major-General Commanding.*

WASHINGTON, D. C., *July 13, 1898.*

Major-General MILES, *Camp near Santiago, Playa del Este, Cuba:*

I telegraphed you an hour since in regard to the action of the Army. Since then your dispatch has been received conveying the result of the meeting between the lines, at which conference Toral requested until to-morrow noon to hear from his Government regarding our offer, which you granted. Your action is approved. This Government will send the Spanish prisoners who surrender home, if they wish.

R. A. ALGER, *Secretary of War.*

PLAYA. (Received Washington July 14, 1898—3.24 p. m.)

SECRETARY OF WAR, *Washington:*

Before Santiago, July 14.—General Toral formally surrendered the troops of his army corps and division of Santiago on the terms and understanding that his troops would be returned to Spain. General Shafter will appoint commissioners to draw up the conditions of arrangements for carrying out the terms of surrender. This is very gratifying, as General Shafter and the officers and men of this command are entitled to great credit for their sincerity, fortitude, and in overcoming almost insuperable obstacles which they encountered. A portion of the Army has been infected with yellow fever, and efforts will be made to separate those who are infected and those free from it, and to keep those which are still on board ship separated from those on shore. Arrangements will be immediately made for carrying out further instructions of the President and yourself.

NELSON A. MILES,
Major-General of the Army.

EXECUTIVE MANSION,
Washington, July 15, 1898—12.35 p. m.

Major-General SHAFTER, *Camp before Santiago, Cuba:*

Have you received the absolute surrender of the enemy? We are awaiting the conditions with impatience.

R. A. ALGER, *Secretary of War.*

PLAYA. (Received Washington July 15, 1898—12.52 p. m.)

SECRETARY OF WAR, *Washington:*

Daiquiri, 15.—Commission on behalf of United States appointed, consisting of Generals Wheeler, Lawton, and Lieutenant Miley, with Spanish commission, to arrange for the details for carrying into effect the capitulation. I will reach Siboney to-morrow, and will attend more especially to the second expedition.

MILES, *Major-General.*

PLAYA. (Received Washington July 15, 1898—4.10 p. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters near Santiago, 15.—Sent you several telegrams yesterday, as did General Miles, in regard to surrender. General Toral agreed yesterday positively to surrender all the forces under his command in Eastern Cuba upon a distinct understanding that they were to be sent to Spain by the United States; that this surrender was authorized by General Blanco, and that its submission to-morrow was merely formal. Commissioners to arrange details were appointed—Wheeler, Lawton, and Miley on part of United States. Points were immediately raised by Spanish commissioners.

The discussion lasted until 10 last night. At last my commissioners think the matter will be settled to-day and met at 9.30 o'clock this a. m. The great point

with Spanish is that they may be allowed to carry their arms with them to Spain, marching out here and depositing them in my charge, but having them shipped with them to Spain. There are about 12,000 troops in the city and about as many more in the surrounding district; 25,000 in all will be transported. General Miles was present and said the surrender was as absolute and as complete as possible. It can not be possible that there will be failure in completing arrangements. Water famine in city imminent. Have supply cut. This was to Lieutenant Miley by English commissioners. Will wire frequently when negotiations are progressing.

SHAFTER, *Major-General, Commanding.*

ADJUTANT-GENERAL'S OFFICE,

Washington, July 15, 1898—4.45 p. m.

Major-General SHAFTER, *Playa del Este:*

Secretary of War suggests, is it not possible that Toral is gaining time to get reinforcements that may be on the way to assist him?

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 15, 1898—9 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, *Washington:*

Headquarters near Santiago, Cuba, 15.—I do not believe that Toral is trying to gain time in hopes of getting reinforcements. Cubans have forces in vicinity of all Spanish troops. Toral asked to-day to send messages to Guantanamo and to Palmas to notify Spanish troops of condition. Wheeler, Lawton, and Miley are thoroughly convinced that they are earnest, and they have been in consultation with the Spaniards twenty-four hours. Am told by reliable persons Santiago the Spanish officers are greatly pleased at the thought of going home, but generals are afraid of the consequences with themselves unless terms of surrender are sanctioned by the Madrid Government.

SHAFTER, *Major-General.*

EXECUTIVE MANSION,

Washington, July 15, 1898—5.59 p. m.

Major-General SHAFTER,

Camp near Santiago, Playa:

It is not possible that you are entertaining the proposition of permitting the Spanish to carry away their arms. Such a suggestion should be rejected instantly. You have been instructed the terms of surrender acceptable to the President, and they must be concluded on these lines.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI,

(Received Washington July 15, 1898—11.20 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters near Santiago, 15.—I do not entertain the proposition for the Spanish to retain their arms. They are to surrender them absolutely immediately after articles of capitulation are signed, but they beg, as an act of consideration to them, that I will intercede with my Government that they be shipped with them to Spain. I regard this as a small matter that in no way binds the Government, but is one I would not let stand between clearing 20,000 Spanish soldiers out of Cuba or leaving them there to be captured later and probably with much loss to ourselves.

SHAFTER, *Major-General.*

EXECUTIVE MANSION,
Washington, July 16, 1898—1.18 a. m.

Major-General SHAFER, *Playa del Este, Cuba, Camp near Santiago:*

Our understanding from your messages is that you have agreed with the commander of the Spanish forces in Eastern Cuba for their complete surrender, and with a single condition granted on your part that the United States would transport them to Spain, officers and soldiers to give their paroles, and the former to retain their side arms. The demand of General Toral that the arms belonging to his command shall be shipped with him to Spain has been rightly declined by you.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, via HAITI,
(Received Washington July 16, 1898—2.20 a. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters near Santiago, 15.—Surrender was made by Toral, yesterday p. m., absolutely on condition of returning troops to Spain. Delay was caused by the commissioners on his part insisting on approval of Madrid. I think they fear death when they get home. We may have to fight them yet.

SHAFER.

PLAYA. (Received Washington July 16, 1898—9.05 a. m.)
ADJUTANT-GENERAL, *Washington:*
Spanish surrendered; particulars later.

SHAFER.

Terms of the military convention for the capitulation of the Spanish forces occupying the territory which constitutes the division of Santiago de Cuba, and described as follows: All that portion of the island of Cuba east of a line passing through Aserradero, Dos Palmas, Canto Abajo, Escondida, Tanamo, and Aguilera, said troops being in command of Gen. José Toral, agreed upon by the undersigned commissioners: Brig. Gen. Don Federico Escario, Lient. Col. of Staff Don Ventura Fontan, and, as interpreter, Mr. Robert Mason, of the city of Santiago de Cuba, appointed by General Toral, commanding the Spanish forces, on behalf of the Kingdom of Spain, and Maj. Gen. Joseph Wheeler, U. S. Volunteers, Maj. Gen. H. W. Lawton, U. S. Volunteers, and First Lient. J. D. Miley, Second Artillery, aid-de-camp, appointed by General Shafter, commanding the American forces, on behalf of the United States.

1. That all hostilities between American and Spanish forces in this district absolutely and unequivocally cease.
2. That this capitulation includes all the forces and war material in said territory.
3. That the United States agrees, with as little delay as possible, to transport all the Spanish troops in said district to the Kingdom of Spain, the troops being embarked as far as possible at the port nearest the garrisons they now occupy.
4. That the officers of the Spanish army be permitted to retain their side arms, and both officers and private soldiers their personal property.
5. That the Spanish authorities agree to remove, or assist the American Navy in removing, all mines or other obstructions to navigation now in the harbor of Santiago and its mouth.
6. That the commander of the Spanish forces deliver without delay a complete inventory of all arms and munitions of war of the Spanish forces in above-described district to the commander of the American forces; also a roster of said forces now in said district.

7. That the commander of the Spanish forces in leaving said district is authorized to carry with him all military archives and records pertaining to the Spanish army now in said district.

8. That all that portion of the Spanish forces known as volunteers, movilizados, and guerrillas who wish to remain in the island of Cuba are permitted to do so upon condition of delivering up their arms and taking a parole not to bear arms against the United States during the continuance of the present war between Spain and the United States.

9. That the Spanish forces will march out of Santiago de Cuba with honors of war, depositing their arms thereafter at a point mutually agreed upon to await their disposition by the United States Government, it being understood that the United States commissioners will recommend that the Spanish soldier return to Spain with the arms he so bravely defended.

10. That the provisions of the foregoing instrument become operative immediately upon its being signed.

Entered into this 16th day of July, 1898, by the undersigned commissioners acting under instructions from their respective commanding generals, and with the approbation of their respective Governments.

JOSEPH WHEELER,
Major-General, U. S. Volunteers.
H. W. LAWTON,
Major-General, U. S. Volunteers.
J. D. MILEY,
First Lieutenant, Second Artillery,
Aid-de-camp to General Shafter.
FEDERICO ESCARIO.
VENTURA FONTAN.
ROBT. MASON.

WASHINGTON, D. C., July 16, 1898.

General SHAFER, *Commanding,*

Front near Santiago, Playa:

The President of the United States sends to you and your brave army the profound thanks of the American people for the brilliant achievements at Santiago, resulting in the surrender of the city and all of the Spanish troops and territory under General Toral. Your splendid command has endured not only the hardships and sacrifices incident to campaign and battle, but in stress of heat and weather has triumphed over obstacles which would have overcome men less brave and determined. One and all have displayed the most conspicuous gallantry and earned the gratitude of the nation. The hearts of the people turn with tender sympathy to the sick and wounded. May the Father of Mercies protect and comfort them.

WILLIAM MCKINLEY.

WASHINGTON, D. C., July 16, 1898.

MAJOR-GENERAL SHAFER, *Front near Santiago, Playa:*

I can not express in words my gratitude to you and your heroic men. Your work has been well done. God bless you all.

R. A. ALGER, *Secretary of War.*

WAR DEPARTMENT, July 16, 1898.

General SHAFER, *Playa del Este, Cuba:*

The Secretary of War directs that the President's message to you be published to each regiment in your army.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 16, 1898—10.15 a. m.

General SHAFER, *Playa del Este*:

Let me, too, add my hearty congratulations to you and all with you.

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, via HAITI.

(Received Washington July 16, 1898—10.05 p. m.)

Hon. R. A. ALGER, *Secretary of War, Washington*:

Camp near Santiago, 16.—Thank you very much for your kind telegram of this date. The army is glad to know its action meets with your approval.

SHAFER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI,

(Received Washington July 16, 1898—8.52 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Camp near Santiago, 16.—The surrender has been definitely settled, and the arms will be turned over to-morrow morning and the troops will be marched out as prisoners of war. The Spanish colors will be hauled down at 9 o'clock and the American flag hoisted. Hope transports will be sent here to get them away as quickly as possible.

SHAFER, *Major-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 17, 1898—9.55 a. m.

General SHAFER, *Playa del Este, Cuba*:

Your telegram saying that our flag would be hoisted in Santiago at 9 this morning was received by the President and Secretary of War and members of the Cabinet with a sense of profound satisfaction. This feeling is general with all the people. I hope you are well.

H. C. CORBIN, *Adjutant-General*.

SANTIAGO DE CUBA, July 17, 1898.

(Received Washington 4.36 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.*:

I have the honor to announce that the American flag has been this instant, 12 noon, hoisted over the house of the civil government in the city of Santiago. An immense concourse of people present. A squadron of cavalry and a regiment of infantry presenting arms and band playing national air. Light battery fired salute of 21 guns. Perfect order is being maintained by municipal government. Distress is very great, but little sickness in town. Scarcely any yellow fever. A small gun-boat and about 200 seamen left by Cervera have surrendered to me. Obstructions are being removed from mouth of harbor. Upon coming into the city I discovered a perfect entanglement of defenses. Fighting as the Spaniards did the first day, it would have cost 5,000 lives to have taken it. Battalions of Spanish troops have been depositing arms since daylight in armory over which I have guard. I hope vessels sufficient to carry 8,000 to 10,000 men will be sent as soon as possible, as the presence of prisoners is source of embarrassment. No sickness among them, and they should leave before any breaks out. General Toral formally surrendered the plaza and all stores at 9 a. m. American consul needed here.

W. R. SHAFER, *Major-General*.

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 18, 1898—6.30 p. m.*General SHAFTER, *Santiago, Cuba:*

The following is sent you for your information and guidance. It will be published in such manner in both English and Spanish as will give it the widest circulation in the territory under your control:

"To the SECRETARY OF WAR:

"SIR: The capitulation of the Spanish forces in Santiago de Cuba and in the eastern part of the province of Santiago, and the occupation of the territory by the forces of the United States, render it necessary to instruct the military commander of the United States as to the conduct which he is to observe during the military occupation.

"The first effect of the military occupation of the enemy's territory is the severance of the former political relations of the inhabitants and the establishment of a new political power. Under this changed condition of things, the inhabitants, so long as they perform their duties, are entitled to security in their persons and property, and in all their private rights and relations. It is my desire that the inhabitants of Cuba should be acquainted with the purpose of the United States to discharge to the fullest extent its obligations in this regard. It will therefore be the duty of the commander of the army of occupation to announce and proclaim in the most public manner that we come, not to make war upon the inhabitants of Cuba, nor upon any party or faction among them, but to protect them in their homes, in their employments, and in their personal and religious rights. All persons who, either by active aid or by honest submission, cooperate with the United States in its efforts to give effect to this beneficent purpose will receive the reward of its support and protection. Our occupation should be as free from severity as possible.

"Though the powers of the military occupant are absolute and supreme, and immediately operate upon the political condition of the inhabitants, the municipal laws of the conquered territory, such as effect private rights of person and property, and provide for the punishment of crime, are considered as continuing in force, so far as they are compatible with the new order of things, until they are suspended or superseded by the occupying belligerent; and in practice they are not usually abrogated, but are allowed to remain in force, and to be administered by the ordinary tribunals, substantially as they were before the occupation. This enlightened practice is, so far as possible, to be adhered to on the present occasion. The judges and the other officials connected with the administration of justice may, if they accept the supremacy of the United States, continue to administer the ordinary law of the land, as between man and man, under the supervision of the American commander in chief. The native constabulary will, so far as may be practicable, be preserved. The freedom of the people to pursue their accustomed occupations will be abridged only when it may be necessary to do so.

"While the rule of conduct of the American commander in chief will be such as has just been defined, it will be his duty to adopt measures of a different kind, if, unfortunately, the course of the people should render such measures indispensable to the maintenance of law and order. He will then possess the power to replace or expel the native officials in part or altogether, to substitute new courts of his own constitution for those that now exist, or to create such new or supplementary tribunals as may be necessary. In the exercise of these high powers the commander must be guided by his judgment and his experience and a high sense of justice.

"One of the most important and most practical problems with which it will be necessary to deal is that of the treatment of property and the collection and administration of the revenues. It is conceded that all public funds and securities belonging to the government of the country in its own right, and all arms and supplies and other movable property of such government, may be seized by the military occupant and concerted to his own use. The real property of the State he may hold and administer, at the same time enjoying the revenues thereof, but he is not to destroy

it save in the case of military necessity. All public means of transportation, such as telegraph lines, cables, railways, and boats belonging to the State may be appropriated to his use, but unless in case of military necessity they are not to be destroyed. All churches and buildings devoted to religious worship and to the arts and sciences, all school houses, are, as far as possible, to be protected, and all destruction or intentional defacement of such places, of historical monuments, or of archives, or of works of science or art, is prohibited, save when required by urgent military necessity.

Private property, whether belonging to individuals or corporations, is to be respected, and can be confiscated only for cause. Means of transportation, such as telegraph lines and cables, railways and boats, may, although they belong to private individuals or corporations, be seized by the military occupant, but, unless destroyed under military necessity, are not to be retained.

While it is held to be the right of the conqueror to levy contributions upon the enemy in their seaports, towns, or provinces which may be in his military possession by conquest, and to apply the proceeds to defray the expense of the war, this right is to be exercised within such limitations that it may not savor of confiscation. As the result of military occupation the taxes and duties payable by the inhabitants to the former government become payable to the military occupant, unless he sees fit to substitute for them other rates or modes of contribution to the expenses of the government. The moneys so collected are to be used for the purpose of paying the expenses of government under the military occupation, such as the salaries of the judges and the police, and for the payment of the expenses of the army.

Private property taken for the use of the army is to be paid for, when possible, in cash at a fair valuation; and when payment in cash is not possible receipts are to be given.

All ports and places in Cuba which may be in the actual possession of our land and naval forces will be opened to the commerce of all neutral nations, as well as our own, in articles not contraband of war, upon payment of the prescribed rates of duty which may be in force at the time of importation.

WILLIAM MCKINLEY.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General*.

SANTIAGO, VIA HAITI, *July 25, 1898.*

(Received Washington 6.55 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington:*

Fifteen hundred copies of the President's proclamation were printed as directed, and distributed throughout the territory.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI, *July 21, 1898.*

(Received at Washington 6.03 p. m.)

SECRETARY OF WAR, *Washington:*

In order to avoid conflict of authority or misunderstanding, general directions were given General Shafter to be executed under his orders and supervision, as follows: All regimental property and stores needed with his command were to be unloaded without delay at Santiago. Such transports as were required for hospital ships would be selected. Those loaded with troops and supplies for Porto Rico were to go there, and all others, as fast as emptied, return to Tampa. Tugs, lighters, and appliances for disembarking troops and commissary and quartermaster's stores not required at Santiago were to be forwarded to Porto Rico. Quartermaster transportation wagon and pack trains not required at Santiago to be also forwarded to Porto Rico. On completion of such duties, Colonels Humphrey and Weston to be

sent to Porto Rico. This left the whole matter under the direction and supervision of General Shafter, and it was also left to his option to determine when the services of the officers named could be spared. As the Spanish prisoners have their own commissaries and quartermasters, General Shafter can issue to them stores in bulk for from five to ten days at a time.

There is no liability of their going away, as without arms they would be in danger of the Cubans, and they can not go by sea, hence they will require but a small guard. There is not a single regiment of regulars or volunteers with General Shafter's command that is not infected with yellow fever, from one case in the Eighth Ohio to thirty-six cases in the Thirty-third Michigan. After consulting with best medical authorities it is my opinion that the best mode of ridding the troops of the fever will be as I have directed, namely, the troops to go up as high into the mountains as possible, selecting fresh camp every day. If this does not check the spread of the disease the only way of saving a large portion of the command will be to put them on transports and ship them to New England coast, to some point to be designated by the Surgeon-General. Colonel Greenleaf, surgeon in chief, believes the disease comes from occupying houses, shacks, and blockhouses that have been occupied by yellow fever patients, although I had given positive directions prohibiting this before the troops landed. This was the case with the building occupied as post-office, one occupied by correspondents, and those occupied by the Thirty-third Michigan. In one blockhouse at Aguadores, where the Spaniards usually kept a guard of nine men, there originated thirty-seven cases resulting in death during the past year.

MILES, *Major-General Commanding.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 4, 1898.

THE ADJUTANT-GENERAL, *Headquarters of the Army.*

SIR: I have the honor to recommend that the necessary authority be forwarded to Major-General Shafter to utilize, on the application of the Chief Surgeon, for the transportation of the sick and wounded of his army, any vessel adapted to that purpose that may be returning from Cuba to the United States; and should a transport be so used, that telegraphic information be sent at once to the Surgeon-General of the Army, stating date of departure, the number of patients on board, and the port of destination.

Very respectfully, your obedient servant,

CHAS. R. GREENLEAF,
*Colonel, Assistant Surgeon-General, U. S. Army,
Chief Surgeon Army in the Field.*

ADJUTANT-GENERAL'S OFFICE, *Washington, July 4, 1898.*

General SHAFTER, *Playa del Este, Cuba:*

You are authorized to use any vessel adapted to that purpose for transportation of sick and wounded. Telegraph this office, giving date of departure and number of patients on board, and destination of any vessel so used.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE, *Washington, July 7, 1898.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War directs that consolidated returns of killed and wounded be mailed as soon as they can be prepared without interference with work in hand.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI,
(Received at Washington July 7, 1898.)

ADJUTANT-GENERAL U. S. ARMY, *Washington* :

Headquarters Fifth Army Corps, near San Juan River, 6.—The list of killed and wounded in Second Division already forwarded. Others not yet received, but will be sent you as soon as possible.

E. J. MCCLERNAND,
Assistant Adjutant-General.

PLAYA DEL ESTE, VIA HAITI,
(Received at Washington July 9, 1898—9.35 a. m.)

ADJUTANT-GENERAL, *Washington* :

Camp near Santiago, 8.—Complete report received to-day of losses on July 1 and 2: Killed, 22 officers and 208 enlisted men; wounded, 81 officers and 1,203 enlisted men; missing, 79 enlisted men. The reports giving names of killed and wounded are being rapidly prepared, and it is hoped to get them off to-morrow.

SHAFTER, *Major-General.*

PLAYA, *July 11, 1898.* (Received at Washington 2.05 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington* :

Siboney, Cuba, 11.—Reports of casualties in actions of July 1, 2, and 3 show: Killed, 23 officers, 208 men; wounded, 80 officers, 1,203 men; missing, 81 men; grand total, 1,595; number of missing will be reduced. Number by mail, giving names.

SHAFTER, *Major-General, Commanding.*

SANTIAGO, VIA HAITI, *July 24, 1898.*
(Received at Washington 5.30 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington* :

The report of casualties, in figures, was sent you on July 10. A full report, giving name, rank, and regiment of killed, wounded, and missing, was forwarded by mail July 12, and the supplemental report containing names of about 15 men that had not been included was forwarded a few days later. I have the retained copies, but on account of uncertainty of mails I dislike to forward them.

SHAFTER, *Major-General, Commanding.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 24, 1898—11.15 p. m.

General SHAFTER, *Santiago* :

The casualty report in figures reached here to-day. That containing names will doubtless be along very soon. If not, will inform you.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE.
(Received at Washington, July 6, 1898—4.20 a. m.)

ADJUTANT-GENERAL, *Washington* :

In Camp near Santiago, Cuba, 5.—The *Iroquois* sailed two days ago with 300 wounded. *Cherokees* sails to-day with 325 wounded.

SHAFTER, *Commanding.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 5, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary War directs that as far as possible the sick and wounded of your command be sent to Fort Monroe, and not to Key West or Tampa. Of course your chief medical officer will determine character of cases sent. Surgeon-General suggests that the most severe cases should be treated on *Relief* ship.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.
(Received Washington July 6, 1898—9.47 p. m.)

ADJUTANT-GENERAL, *Washington:*

In Camp near Santiago, 5.—*Iroquois* already sailed for Key West. If *Cherokee* has not sailed will have her go to Fort Monroe. Hereafter all wounded will be sent to Fort Monroe.

SHAFTER, *Commanding.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 6, 1898.

COMMANDING OFFICER, *Key West, Fla.:*

On arrival of the *Cherokee* from Santiago, which sailed yesterday, Secretary War directs you cause her to proceed to Tampa, where hospital train will await the wounded on this ship.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 8, 1898.

COMMANDING OFFICER, *Key West, Fla.:*

The *Cherokee*, on its arrival at Key West, will discharge 100 of the worst wounded cases, to be taken into the hospital at Key West. After discharging these hundred she will then proceed to Tampa, where she will be met by hospital train, and the sick conveyed to Fort McPherson.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

(Same to commanding officer the *Cherokee*, on arrival at Key West; surgeon in charge of wounded, the *Cherokee*, Key West, Fla.)

Upon General Shafter's leaving Santiago Major-General Lawton was placed in charge of the province of Santiago and Brigadier-General Wood in command of the city of Santiago.

On October 7 General Lawton was granted a sick leave, and Brigadier-General Wood succeeded him.

Customs regulations have been put in force in this department, and much has been done to improve the sanitary condition of Santiago, and arrangements are being made to carry on the same work in other cities under his command.

On the 10th of October the Spaniards evacuated Manzanillo, which has also been placed in the department of General Wood. The sanitary condition of all cities of this province is simply terrible, and a great

amount of work and the expenditure of much money will be necessary to make them habitable.

Cooler weather approaching, and under the energetic supervision of General Wood it is hoped that his department will, before the beginning of the hot season of 1899, be in good condition.

While funds are lacking to enable the inhabitants to go to their homes and begin raising crops, yet the employment given many of these people by the Government is in a measure aiding them. It will, however, be necessary to furnish them means to commence raising the necessary crops and for self-support.

Following dispatches relate to the Porto Rico campaign. Reference is also made to the report of the Major-General Commanding:

WAR DEPARTMENT, *July 18, 1898.*

General MILES, *Siboney, Cuba:*

What have you determined upon? We wish to know where to direct transports.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI, *July 18, 1898.*

(Received at Washington 10.16 p. m.)

SECRETARY OF WAR, *Washington:*

Playa, 18.—At a meeting between Admiral Sampson and myself Saturday, Cape de San Juan was considered the best place to land at Porto Rico. I believe it would avoid some complication and delay if we could go there at once. Men and animals have been many days on shipboard.

MILES.

PLAYA, VIA HAITI, *July 17, 1898.*

(Received at Washington 6.42 p. m.)

SECRETARY OF WAR, *Washington:*

Guantanamo Bay, July 17.—There is a strong fleet of naval vessels in this harbor preparing to go to Spain. Would it not be well to suggest a strong combined movement on Porto Rico, to make sure of the capture of the island and the reduction of the forts there as speedily as possible, as its occupation will probably be all the assistance required of the Navy in the complete control of the islands in the West Indies?

MILES, *Major-General Commanding.*

PLAYA DEL ESTE, VIA HAITI, *July 20, 1898.*

(Received Washington 8.25 p. m.)

SECRETARY OF WAR, *Washington:*

July 20.—There is an excellent battalion of about 500 marines here. If President would authorize, would like to take them with my command to Porto Rico, as they are anxious to go and the Navy has no further use for them.

MILES, *Major-General Commanding.*

WAR DEPARTMENT, *July 20, 1898.*

General MILES, *Playa del Este, Cuba:*

I do not think well of your suggestion about marines. We have enough army for our work. Do not take Colonel Humphrey away from Santiago.

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 18, 1898—10.45 p. m.

Major-General MILES, *On board Yale, Guantanamo:*

After a conference of the President, Secretaries of War and Navy this morning telegram was sent directing you to land troops now on *Yale* and other transports at such place in Porto Rico as you may determine upon. Like telegram was sent Admiral Sampson. It is desired to know if the same has been received by you.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA VIA HAYTI, July 21, 1898.

(Received Washington 9.44 a. m.)

SECRETARY WAR, *Washington:*

Last night I sent this letter:

"JULY 20.

"Admiral SAMPSON, *Commanding North Atlantic Squadron.*

"SIR: I am informed by my adjutant-general that you have designated the *Yale* and *Columbia* as ships to render the assistance for landing of the troops and for maintaining their landing, and also the *Cincinnati*, the whereabouts of which I understand is not known, and the *New Orleans*, if it is at San Juan. If the latter vessel is not at San Juan it ought to be, and remain there; otherwise that port is left open with nothing to prevent the Spanish gunboats known to be there from coming out and capturing our transports now en route to Cape San Juan. Second, since it is not known where the *Cincinnati* is, it may or may not be of any assistance. Third, the *Columbia* and *Yale* could not silence a battery of light artillery on shore without jeopardizing the lives of 300 to 1,500 troops on board. In view of the above facts I have to inform you that I do not consider the force above mentioned available or sufficient to cover the landing of some 10,000 men now en route to Cape San Juan, and I have to request that an additional and ample force be immediately ordered to those waters.

"Very respectfully,

"NELSON A. MILES,

"*Major-General Commanding U. S. Army.*"

Have received the following reply:

"U. S. FLAGSHIP NEW YORK (FIRST RATE),

"*Guantanamo Bay, July 20, 1898.*

"NELSON A. MILES, *Major-General Commanding U. S. Army.*

"SIR: Referring to your letter of this date, the *Cincinnati* is ordered by telegraph here. She is either at Key West or within easy reach from there on the Havana blockade. The *Annapolis*, *Wasp*, and *Leyden*, ordered to attack Port Nipe, have been ordered to Cape San Juan to assist in the expedition. The *Gloucester* will be added. Three monitors will join the expedition. The *Cincinnati*, *Yale*, *Columbia*, *Annapolis*, *Wasp*, *Gloucester*, and *Leyden* are amply sufficient to cover the landing of 10,000 men at the point named without the monitors. The first four are capable of silencing anything short of heavy guns in position.

"Very respectfully,

"W. T. SAMPSON,

"*Rear-Admiral, U. S. Navy,*

"*Commander in Chief U. S. Naval Forces, North Atlantic Station.*"

With this support I will sail as quickly as the *Columbia* can get sufficient coal to take her to Cape San Juan and last a few days. All are very glad of the prospect of reaching their destination.

MILES.

WAR DEPARTMENT, July 21, 1898.

General MILES, *Playa del Este, Cuba:*

The Secretary of the Navy just informs me that he received an order from the President at 2 o'clock this morning to send the *Indiana* and *Newark*, or ships of that

class, at once to convoy you and remain with you as long as needed. Don't go without them.

R. A. ALGER, *Secretary of War.*

ST. THOMAS, VIA BERMUDA, *July 26, 1898.*

(Received at Washington 9.35 p. m.)

SECRETARY WAR, *Washington:*

Circumstances were such that I deemed it advisable to take the harbor of Guanica first, 15 miles west of Ponce, which was successfully accomplished between daylight and 11 o'clock. Spaniards surprised. The *Gloucester*, Commander Wainwright, first entered the harbor; met with slight resistance; fired a few shots. All the transports are now in the harbor, and infantry and artillery rapidly going ashore. This is a well-protected harbor; water sufficiently deep for all transports, and heavy vessels can anchor within a few hundred yards of shore. The Spanish flag was lowered and the American flag raised at 11 o'clock to-day. Captain Higginson, with his fleet, has rendered able and earnest assistance. Hope to move on Ponce in a few days, that being the largest city in Porto Rico. Notification has been sent to the transports going to Cape San Juan that all transports and supplies should be directed to this port or Ponce until further notice. Troops in good health and best spirits. No casualties.

MILES,

Major-General Commanding Army.

ADJUTANT-GENERAL'S OFFICE,

Washington, July 21, 1898—12.30 a. m.

Major-General MILES,

On Board Yale, 1 laya

Wilson is on the way to Cape Fajardo. A battle ship and armed cruiser must be sent at once to protect them on the arrival. The President has so instructed the Secretary of the Navy.

R. A. ALGER,

Secretary of War.

PORT PONCE, PORTO RICO (VIA ST. THOMAS), *July 28, 1898.*

(Received Washington, July 29, 1898—2.11 p. m.)

SECRETARY OF WAR, *Washington:*

1.30 a. m. On the 26th Garretson had a spirited engagement on skirmish line. Our casualties, 4 wounded; all doing well. Spanish lost 3 killed, 13 wounded. Yauco occupied yesterday. Henry's division there to-day. Last evening Commander Davis of the *Dixie* moved into this port, followed by Captain Higginson with his fleet early this morning. General Wilson and Ernst's brigade now rapidly disembarking. Spanish troops are retreating from southern part Porto Rico. Ponce and port have population 50,000 now under American flag. The populace received troops and saluted the flag with wild enthusiasm. Navy has several prizes; also seventy lighters. Railway stock partly destroyed; now restored. Telegraph communication also being restored; cable instruments destroyed. Have sent to Jamaica for others. This is a prosperous and beautiful country. The army will soon be in mountain region; weather delightful; troops in best of health and spirits; anticipate no insurmountable obstacles in future results. Thus far, have been accomplished without the loss of a single life.

NELSON A. MILES,

Major-General Commanding Army.

PORT PONCE, PORTO RICO (VIA ST. THOMAS), *July 28, 1898.*

(Received Washington July 29, 1898—2.36 p. m.)

SECRETARY WAR, *Washington, D. C.:*

4.15 p. m. In the affair of the 26th Capt. Edward J. Gibson, Company A, was wounded in the left hip; Capt. J. H. Prior, Company L, slightly wounded in hand; Private James Drummond, Company K, two wounds in neck, and Private Benjamin F. Bostick, Company L, slight wound on right arm; all of Sixth Massachusetts; all doing well. The Spanish retreat from this place was precipitous, they leaving rifles and ammunition in barracks and 40 or 50 sick in hospital. The people are enjoying a holiday in honor of our arrival.

MILES.

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 26, 1898—4.25 p. m.*Major-General MILES, *Porto Rico:*

Conflicting reports here as to your place of landing. Why did you change? Doraco, near Enseuada, about 15 miles west of San Juan, is reported an excellent place to land. The *Yosemite* went in there and remained several days. Did you leave ships to direct Schwan and Wilson now en route where to find you? General Brooke will leave Fortress Monroe to-morrow.

R. A. ALGER, *Secretary of War.*PORT OF PONCE, PORTO RICO, *July 30, 1898.*The Honorable SECRETARY OF WAR, *Washington, D. C.*

SIR: This command was made up of detachments of troops sent from Santiago, Tampa, Charleston, and Newport News, and it was not intended at first to make more than a rendezvous for the purpose of organizing the command at Guantanamo or one of the islands near Cape San Juan. On the representation of one of the naval officers, however, Point Fajardo was selected. It was later found that this port was more of an open roadstead than a safe harbor, and, further, that it was well known that we were to land there, the Spaniards being thus enabled to concentrate their forces in that vicinity before our arrival. In addition to this, I found later that the road was not suitable there for wagons or artillery. Before leaving Guantanamo, however, I had expected lighters, steam tugs, etc., to be sent from Santiago and also a construction corps from New York. None of these arrived, nor did we meet them, as expected, in the Windward Passage. This left the command without lighters and, no wagon transportation. The above are some of the reasons why I decided to take the harbors of Guanica and Ponce, where we were least expected, and from which latter point there is a macadamized road which cost the Spanish Government millions of dollars, and over which it is only 70 miles to San Juan.

We have now landed in a perfectly healthy country, well settled, and where, if necessary, a large amount of beef can be obtained, and also transportation, and under the circumstances, in my mind, much more suitable and more important in a strategic way than the other point; besides, ample time will be furnished here for thoroughly organizing the expedition before the march and for creating a favorable impression upon the people. Every precaution has been taken to notify transports coming to proceed to this point, a large number of which have arrived.

Marching across the country, rather than under the guns of the fleet, will have in every way a desirable effect upon the inhabitants of this country. At least four-fifths of the people hail with great joy the arrival of United States troops, and requests for our national flag to place over public buildings come in from every direction.

I have the honor to be, very respectfully, your obedient servant,

NELSON A. MILES,

Major-General Commanding.

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., July 30, 1898—12.40 a. m.

General MILLS, *Ponce, Porto Rico*:

Secretary of War directs me to inform you that the following transports left Newport News for Porto Rico July 28:

St. Louis with Third Illinois, 1,173 men, 46 officers, and General Brooke and staff.

Roumania with four batteries, Rodney's battalion, about 19 officers and 700 men, 16 guns and caissons, 4 battery wagons, 331 horses, 72 mules, reserve ambulance, signal corps, and hospital wagons and stores, artillery ammunition, rations for men; about thirty days' forage for 1,000 horses.

Massachusetts with reserve ambulance corps, hospital corps, men and horses; headquarters First Army Corps; Troop H, Sixth Cavalry; Troops A and C, New York Volunteer Cavalry; City Troop, Pennsylvania Cavalry; Company F, Eighth Infantry. Total, 43 officers, 1,130 men, 1,005 horses and mules.

Seneca, with part Fourth Pennsylvania, 611 men, small arms, ammunition, rations for men, and additional commissary stores, wagons, and equipage, signal corps, 29 ambulances, and various small stores.

City of Washington, with part of Fourth Pennsylvania, 612 men, cargo of commissary stores, overflow of *Massachusetts*, small arms ammunition, and rations for men.

St. Paul, with Fourth Ohio, 44 officers, 1,211 men, battery dynamite guns, Brigadier-General Hains and staff, Porto Rican Commission, newspaper correspondents, and transients joining Army in Porto Rico.

General Grant's brigade follows from Newport News and will sail Monday or Tuesday. General Shafter is sending the transports rapidly to Tampa. Troops from there should be under way in considerable numbers by middle of the week unless we are embarrassed by the quarantine regulations, which are giving us trouble all along the line.

H. C. CORBIN, *Adjutant-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 30, 1898.

General MILLS, *Ponce, Porto Rico*:

The Secretary of War directs that transports bringing you troops, as soon as discharged, be put under way at once for New York. This will expedite matters, avoiding complications of quarantine at Southern ports, and thus enable the Department to get you reinforcements and supplies in the quickest time possible. The Santiago transports will bring you all that you ordered from Tampa. They are all under way there.

H. C. CORBIN, *Adjutant-General*.

PONCE, PORTO RICO, July 31, 1898.
(Received at Washington 3.35 p. m.)

SECRETARY OF WAR, *Washington, D. C.*:

Your telegrams 27th received and answered by letter. Volunteers are surrendering themselves with arms and ammunition. Four-fifths of the people are overjoyed at the arrival of the army; 2,000 from one place have volunteered to serve with it. They are bringing in transportation, beef cattle, and other needed supplies. The custom-house has already yielded \$14,000, which is the only public funds we have for paying necessary expenses. As soon as all the troops are disembarked they will be in readiness to move. Please send any national colors that can be spared, to be given to the different municipalities. I request that the question of the tariff rates to be charged in the ports of Porto Rico occupied by our forces be submitted to the President for his action, the previously existing tariff remaining meanwhile in force. As to the Government under military occupation, I have already given instructions based upon

the instructions issued by the President in the case of the Philippine Islands and similar to those issued at Santiago de Cuba.

MILES.

One hundred flags were sent to General Miles in response to above request.

PONCE, VIA BERMUDA.

(Received Washington August 2, 1898, 9.27 p. m.)

SECRETARY OF WAR, *Washington*:

Please inform me how soon ample quartermaster and commissary funds will be available at this place. We are using native transportation and employing labor in unloading transports and storing supplies. Abundance of beef, cattle, coffee, sugar, and supplies of that character can be obtained in the country. Request that no more fresh meat be sent, as it can not be used more than a day from the coast. I also recommend that the manufacture of Springfield rifles, .45-caliber ammunition, all white canvas tentage and black-leather equipments of every description be discontinued, as they are obsolete and should not be a part of the army equipment.

MILES, *Major-General*.

WAR DEPARTMENT, *August 3, 1898.*

General MILES, *Ponce, Porto Rico*:

As you ought to know, the last caliber .45 Springfield rifle was manufactured in ninety-three. Smokeless powder cartridges are now being manufactured and will be forwarded. I suggest that you get along with what the Government has on hand. The question of currency and duties will be taken up to-day. Your action requiring all duties to be paid in United States currency is approved and will be adhered to.

R. A. ALGER, *Secretary of War*.

EXECUTIVE MANSION,
Washington, August 5, 1898.

General MILES, *Ponce, Porto Rico*:

The Secretary of War directs me to inform you that \$50,000 in coin was sent your quartermaster by General Brooke; \$100,000 more by *City of Chester* sailing to-morrow.

H. C. CORBIN, *Adjutant-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, August 6, 1898—Noon.

General MILES, *Ponce, Porto Rico*:

A part of General Grant's brigade sailed from Newport News yesterday; 1,300 more will sail to-morrow; the Fifth United States Cavalry and First Ohio are waiting for the two transports; you were authorized by wire yesterday to send them. The Secretary War desires an early report of how many more troops, if any, you require to prosecute the campaign in Porto Rico. He wishes to hurry forward every man you require, but no more than you need.

H. C. CORBIN, *Adjutant-General*.

PONCE, *August 8, 1898.*
(Received Washington, 1.22 p. m.)

SECRETARY OF WAR, *Washington*:

I think enough troops have been ordered to Porto Rico. No more light batteries required.

MILES.

PONCE, *August 6, 1898.*

(Received Washington 2.35 p. m.)

SECRETARY OF WAR, *Washington:*

General Brooke reports Hains's Brigade, Fourth Ohio and Third Illinois, captured Guayamo yesterday. Slight skirmish with enemy in and about town. Enemy's strength estimated about 500. Not ascertained that any of the enemy were regulars. Resistance not strong. Private John O. Cordner wounded below knee; C. W. Riffes, both legs below thigh; S. W. Wolcott, in right foot. None serious. All Fourth Ohio. One Spaniard killed, two wounded, as far as known.

MILES.

PONCE, *August 8, 1898.*

(Received Washington 3.10 p. m.)

SECRETARY OF WAR, *Washington:*

General Schwan's command is marching around the west end of Porto Rico. General Henry, with Garretson's brigade, is moving across Via Adjuntas and Utuado to Arecibo, thence to San Juan. General Brooke has one brigade between Guayama and Cayes. General Wilson, with Ernst's brigade, is at Coamo. American flag is floating in nearly all the principal places in Porto Rico. A small fort has been built at the entrance of Guanica Bay, which I hold; respectfully recommend be named Fort Capron, in honor of Captain Capron. Would recommend that no more troops or laborers be sent to Porto Rico.

MILES,

*Major-General Commanding Army.*WAR DEPARTMENT, *August 9, 1898.*General MILES, *Ponce, Porto Rico.:*

It is deemed advisable to at once establish a large hospital at Ponce. Can you get the lumber, labor, and material necessary to put this order into execution immediately? Will send you nurses and doctors as many as desired. This is of the utmost importance. Answer, giving number of nurses and doctors you deem will be required.

R. A. ALGER, *Secretary of War.*PONCE (VIA BERMUDA), *August 10, 1898.*

(Received Washington 8 p. m.)

SECRETARY OF WAR, *Washington:*

Replying to your telegram, any sized hospital can be established. Lumber, labor, and material abundant. Or the *Relief* ship may be detained, with other transports of the Government, and be converted into hospital ships, if advisable, and remain in safe harbor. Matter being carefully considered by Colonels Greenleaf and Senn and Major Torney, who will render best judgment to-morrow and give number of nurses and doctors required. The command is in good health thus far, with the exception of cases that bring the germs of disease from Chickamauga and other camps.

MILES.

PONCE (VIA BERMUDA), *August 11, 1898.*

(Received Washington 9.45 p. m.)

SECRETARY OF WAR, *Washington:*

Following is result of conference and recommendation by Surgeons Greenleaf, Torney, Daly, regarding case sick of army in Porto Rico: General Miles's hospital of lumber can be built, but one of tents preferable. We, however, urgently recommend speedy return of sick to United States on properly equipped transports or hospital ships. Fifty doctors and hundred and fifty trained male nurses required at once.

MILES.

PONCE, *August 9, 1898.*

(Received Washington 1.35 p. m.)

SECRETARY WAR, *Washington:*

I am informed the naval vessels at this place have been ordered round to San Juan. In order that there may be no conflict of authority, I request that no aggressive action be taken against that place; that no landings be made or communication held with the Spanish officials or forces on this island by the Navy.

MILES.

PONCE, *August 9, 1898.*

(Received Washington 5.05 p. m.)

SECRETARY OF WAR, *Washington:*

Following received from General Wilson: General Ernst's brigade captured Coamo 8.30 this morning. Sixteenth Pennsylvania, Colonel Hulings commanding, led by Lieutenant-Colonel Biddle, of my staff, having made a turning movement through the mountains, striking the Aiboneto road half mile beyond town, captured entire garrison, amounting 150 men, Spanish commander, Illeroa, and Captain Lopaz killed. Our loss reported 6 wounded, only 1 severely. Men and officers behaved excellently. General Ernst, Colonel Hulings, and Colonel Biddle are especially to be commended. This is a very important capture and well executed. Names of wounded as soon as received here.

MILES.

PONCE, *August 13, 1898.*

(Received Washington 1.06 p. m.)

SECRETARY OF WAR, *Washington:*

General Wilson reports Major Lancaster with Potts's battery at 1.30 p. m., 12th instant, quickly silenced enemy's battery at Asemanta, near Aiboneto, and drove him from his position and rifle pits; no infantry fire on our part. Lieut. John P. Hains, Third Artillery, struck by stray Mauser bullet; not serious. A shell from enemy's gun burst just over one of our pickets, killing Corporal Swansen, wounding Corporal Jenks, Company L, Third Wisconsin, neck and arm; Private Vought, same company, seriously in abdomen; Private Bunce, same company, in chest, not seriously.

MILES.

PONCE (VIA BERMUDA), *August 10, 1898.*

(Received Washington, 7.40 p. m.)

SECRETARY OF WAR, *Washington:*

Have established telegraphic communication with General Brooke, who reports that in a skirmish on the 8th instant with the enemy about 3 miles north of Guayama General Hains forced the enemy to retreat. The following men of the Fourth Ohio were wounded, none killed: Capt. Edward O. Thompson, Company K, in right wrist; Private Samuel F. Jones, right knee; Private Noble W. Haniacker, Company C, in ankle; Private Henry S. Haines, Company C, in right foot; Private William Jeddington, Company A, in hip.

MILES.

PONCE (VIA BERMUDA), *August 11, 1898.*

(Received Washington, 3.25 p. m.)

SECRETARY WAR, *Washington:*

Following message received from Schwan, camp near Hormigueros, 10. Advance guard, including cavalry of this command, while reconnoitering northwest of Rosario River, near Hormigueros, developed strong Spanish force, which lay con-

ceased in hills north of Mayaguez road. In general engagement which followed Lieutenant Byron, Eighth Cavalry, my aid-de-camp, was wounded in foot, and Private Fernberger, Company D, Eleventh Infantry and 1 other private was killed and 14 enlisted men were wounded. It is reported that the most, if not the entire, Spanish garrison of Mayaguez and surrounding country, consisting of 1,000 regulars and 200 volunteers, took part in engagement. We drove the enemy from his position, and it is believed inflicted heavy loss. A wounded Spanish lieutenant was found in field and brought in our lines. Conduct of officers and men was beyond all praise. I propose to continue my march on Mayaguez at early hour to-morrow. Signed, Schwan.

MILES.

PONCE (VIA BERMUDA), *August 11, 1898.*

(Received Washington, 9.35 p. m.)

SECRETARY OF WAR, *Washington:*

Following from Schwan:

"Immediately after repulse yesterday Spanish troops, joined by what were left in Mayaguez, moved in direction Lares. Have sent scouts in that direction. My command entered Mayaguez at 9 o'clock this morning.—SCHWAN."

MILES.

PONCE (VIA BERMUDA), *August 15, 1898.*

(Received Washington 3.11 p. m.)

SECRETARY WAR, *Washington:*

Following dispatches received from General Schwan, sent before he received notification suspension hostilities:

"IN CAMP, 2 MILES NORTH LASMARIOS, VIA GAUCO, *August 13.*

"Burke's column, while descending valley Rio Grande, fired into by retreating Spanish force from mountain slope, north side stream. Fire returned, thought with effect; none of our men hurt. Spanish forces numbering about 1,500, heading for Lares and Penino. Received surrender of commanding officer, Colonel Soto; sick in cottage near; attended by two Spanish surgeons. Have directed they be sent Mayaguez; held as prisoners or paroled as you determine. Shall close my command here and be governed in movements to-morrow by reports expect to receive during the night. Probably march Lares; road most difficult.

"CAMP NEAR LOS MARIAS, *August 14.*

"After sending dispatch last evening, company Eleventh Infantry brought forty prisoners, including battalion commander and lieutenant; also number Spanish soldiers, wounded yesterday. Cavalry scouring country toward Lares for fugitives. Deserters from Spanish column, which has been thoroughly disorganized and demoralized by pursuit. Prisoners report our fire yesterday very effective and well directed."

Please notice on map our troops occupy best part of Porto Rico. They were moving in such strong column in concert that nothing could check their progress. They would have occupied the entire island within four days if they had not been stopped by order to suspend hostilities. There were some unavoidable delays before the troops could be landed, but none after. Will the disembarking of troops that are now in transports be considered an act of hostility?

MILES.

ADJUTANT-GENERAL'S OFFICE,
Washington, August 12, 1898—4.25 p. m.

Major-General MILES, *Ponce, Porto Rico:*

The President directs all military operations against the enemy be suspended. Peace negotiations are nearing completion, a protocol having just been signed by representatives of the two countries. You will inform the commander of the Spanish forces in Porto Rico of these instructions. Further orders will follow. Acknowledge receipt.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, August 12, 1898—5 p. m.

General MILES,
Ponce, Porto Rico.
General MERRITT,
Manila.
General SHAFTER,
Santiago.

The Secretary of War directs that the following proclamation of the President be sent you for your information and guidance:

“BY THE PRESIDENT OF THE UNITED STATES OF AMERICA,

“A PROCLAMATION.

“Whereas, by a protocol concluded and signed August 12, 1898, by William R. Day, Secretary of State of the United States, and His Excellency Jules Cambon, Ambassador Extraordinary and Plenipotentiary of the Republic of France, at Washington, respectively representing for this purpose the Government of the United States and the Government of Spain, the United States and Spain have formally agreed upon the terms on which negotiations for the establishment of peace between the two countries shall be undertaken; and

“Whereas it is in said protocol agreed that upon its conclusion and signature hostilities between the two countries shall be suspended, and that notice to that effect shall be given as soon as possible by each Government to the commanders of its military and naval forces:

“Now, therefore, I, William McKinley, President of the United States, do, in accordance with the stipulations of the protocol, declare and proclaim on the part of the United States a suspension of hostilities, and do hereby command that orders be immediately given through the proper channels to the commanders of the military and naval forces of the United States to abstain from all acts inconsistent with this proclamation.

“In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

“Done at the city of Washington this 12th day of August, in the year of our Lord one thousand eight hundred and ninety-eight, and of the independence of the United States the one hundred and twenty-third.

“By the President:

“WILLIAM McKINLEY.

“WILLIAM R. DAY,
“Secretary of State.”

Acknowledge receipt.

By order Secretary War:

H. C. CORBIN, *Adjutant-General.*

PONCE, via BERMUDA, *August 21, 1898*—8.05 p. m.

SECRETARY WAR, *Washington*:

Everything accomplished that could be desired. Only details to be arranged by commission for evacuation of Spanish troops. Some Spanish troops now marching to San Juan preparatory to embarking for Spain. I have 106 guns, mortars, and howitzers, field and siege, I intended to use at San Juan if Spanish had not been captured outside, which our troops were doing. These available if needed elsewhere. Among number are 10 light, very powerful dynamite guns. If desirable, any of above, with ammunition and men, can be shipped, via New Orleans and San Francisco, to Manila. I expect very soon to return to Washington.

MILES.

BOARD OF ORDNANCE AND FORTIFICATION.

WAR DEPARTMENT,

BOARD OF ORDNANCE AND FORTIFICATION,

Washington, D. C., October 25, 1898.

SIR: In response to your request of the 20th instant, I have the honor to submit a summary of the annual report of the Board of Ordnance and Fortification for the current year:

The general operations of the Board have been largely influenced by the war with Spain, officially declared April 21, 1898. A majority of the members have been called to duty in the field, and it has been necessary to meet at longer and more irregular intervals than usual.

A large number of devices and instruments, together with many suggestions and plans for national defense, have been carefully considered, and whenever the promise of future military value was sufficient to warrant it, an allotment has been made for development and test.

Satisfactory progress has been made by the Bethlehem Iron Company toward the completion of the 100-gun contract. All the 8-inch guns, 29 of the 10-inch, and 4 of the 12-inch guns have already been completed, and the work on the remainder is reported to be well advanced.

Dr. Gatling reports the 8-inch cast-steel gun of his design ready for shipment to Sandy Hook for test.

The trustees of the Brown segmental-tube wire-wound gun report that work has been somewhat delayed on their 10-inch experimental gun by the difficulty in procuring suitable steel from the manufacturers on time. The gun is now in the lathe, however, and partly turned and wound.

The Board has under consideration two methods of throwing high explosives from field guns, one proposed by the Sims-Dudley Defense Company of New York, the other by the Dynamite Ordnance and Armaments Company of New Jersey. The tests have not yet been completed.

Experiments are being made with heavy rapid-fire guns. A rapid-fire field gun and carriage have been purchased abroad for test, but are not yet delivered in this country.

Several forms of disappearing carriages for heavy guns are under construction or test.

During the year the Board has recommended the adoption of emmentite, wet gun-cotton, and joveite as types of high explosives for charging shells.

In emergency depression position finders the Board found both the Rafferty and the Lewis instruments satisfactory. A horizontal base position finder has been developed by Professor Crehore and Lieutenant Squier that is found to give accurate and satisfactory results.

The equipment of the typical artillery station at Fort Wadsworth was completed, with the exception of a portion of the auxiliary defenses, early in the summer, but exhaustive tests have been interfered with by the war. The text and plates of the Drill Regulations for Coast Artillery have been completed, approved by the Secretary of War, and distributed to the service.

The question of the application of electric-power apparatus for manipulating the guns and carriages of the seacoast armament and in the service of the ammunition has been carefully considered, and a type installation is now in progress at Fort Wadsworth.

An estimate of the funds needed to continue the work of the board during the coming year has been prepared and submitted, with a recommendation that the present law be so modified as to enable the Board to more directly control its expenditures. The Board believes it to be for the best interests of the service that it should have the power to disburse its own funds, subject to the control of the Secretary of War.

While types of all the more important engines and appliances of war for our coast defenses have already been developed and adopted under the auspices of the board, much remains to be accomplished in order to make the armament truly effective. It is the aim of the board to keep in touch with the best inventive talent of the country in all that pertains to war material, to encourage the development of every suggestion and device of value presented, and to use the funds at its disposal to secure for our service the best products of American genius.

Very respectfully,

NELSON A. MILES,

Major-General Commanding the Army, President of the Board.

THE SECRETARY OF WAR.

THE SOLDIERS' HOME.

OFFICE OF THE BOARD OF COMMISSIONERS,

Washington, D. C., October 28, 1898.

SIR: I have the honor to submit the following summary of the annual report of the Board of Commissioners of the Soldiers' Home for the year ending September 30, 1898:

The report shows that on September 30, 1898, there were 1,228 receiving the benefits of the Home, an increase of 85 over last year, and that 771 were resident inmates; that the daily average number of inmates for the year was 751, and the number of deaths 54.

The permanent fund in the United States Treasury on September 30, 1898, was \$2,725,740.08, a decrease from amount of last year of \$11,857.87, due to delayed settlements of accounts by the Treasury Department. The disbursements for current expenses and permanent improvements amounted to \$206,566.28, \$11,720 greater than last year, which is accounted for by expenses incurred for permanent

improvements, the purchase of cows for the dairy, and the installation of an electric plant.

Of the 771 resident inmates 629 are receiving pensions from \$6 to \$32 per month; two of these received \$50 and one \$72.

The daily average number of patients treated in the hospital was 74.91, and the average age of patients 53.92.

The cultivation of the farm and the reestablishment of the dairy proved profitable during the year.

Brig. Gen. David S. Stanley, U. S. A., was relieved as governor of the Home on April 15, 1898, by Brig. Gen. George D. Ruggles, U. S. A.

The affairs of the Home have been administered by its officers with zeal and wisdom. Good, wholesome food, comfortable clothing, clean quarters and beds, and rational amusement have been provided, leaving no reasonable room for complaint.

Very respectfully,

NELSON A. MILES,

Major-General Commanding the Army, President Board of Commissioners.

THE SECRETARY OF WAR.

THE MILITARY ACADEMY.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,

Washington, November 5, 1898.

SIR: I have the honor to submit herewith a synopsis of report of the Board of Visitors to the United States Military Academy for the year 1898:

APPOINTMENTS AND EXAMINATIONS.

The board was impressed with the accuracy of knowledge shown by the cadets in their examinations. The work done was strong testimony to the thoroughness of the instructors' work as well as to the diligence of the students.

The recommendations of previous boards, that the number of cadets be increased by allowing the President to appoint 20 and one to each Senator, is renewed.

DISCIPLINE AND INSTRUCTION.

The board is unable to suggest any improvement in the methods of discipline. All infractions of the rules are promptly punished with absolute justice and impartiality.

The methods of instruction are the result of many years of experience of accomplished and painstaking officers, and are as nearly perfect in their results as it seems possible to make them.

SEACOAST BATTERY.

It is recommended that the five 8-inch converted rifles be replaced with guns of modern type, one of which should be a disappearing gun.

This battery contains one 8-inch modern gun, which at present can not be used on account of danger to surrounding towns and railroads. The construction of a safe target in the mountain side for the use of this gun is strongly recommended.

SIEGE AND MORTAR BATTERY.

The guns and howitzers of this battery, with the exception of two, are old and obsolete, and the board recommends that they be replaced with those of modern type, and that the light battery used in the instruction of the fourth class, which consists of four guns, be increased by the addition of two guns.

BUILDINGS AND GROUNDS.

The care that is taken of the buildings and grounds of the reservation is highly commended.

The board is impressed, as has been former boards, with the desirability of refitting and remodeling the interior of the Library Building, so as to make it more suitable for the purposes of a library, and fireproof for the preservation of the valuable books and pamphlets, and does not consider the estimates submitted of \$63,100 for the alterations and of \$6,900 for removing and returning the books as excessive.

An appropriation of \$8,000 is recommended to refit the old army service barracks into a commissary storehouse.

Four thousand two hundred dollars is recommended for a porch to be erected around the cavalry barracks.

The cemetery was found to be in good condition, but showed a want of proper attention to the grass, flowers, plants, and trees, and the board recommend an appropriation of \$720 for a keeper to preserve the same in better repair.

MASTER OF THE SWORD.

The board urges the passage of an act giving the master of the sword the rank, etc., of a first lieutenant of infantry.

Very respectfully,

H. C. CORBIN,
Adjutant-General.

The SECRETARY OF WAR.

An increase of the number of cadets for this great school has been recommended for several years by Boards of Visitors, and the recommendation of the present board is concurred in that twenty cadets annually, to be appointed by the President, and one appointment at large, to be nominated by each Senator, be authorized, in addition to the present number provided by law. This increase is urgently needed.

While all army, corps, and division commanders in the late war were graduates of West Point or officers of the Regular Army, as were all of the chief engineers, quartermasters, commissaries of subsistence, paymasters, surgeons, and ordnance officers, yet there was a great lack of subordinate staff officers for so large an organization.

The present organization of the Army is officered for 25,000 men, and to such an extent was it necessary to appoint Regular Army officers to places in the volunteer force that scarcely a company had more than one

officer, although filled to its maximum with recruits; and in many cases, when an officer was killed, wounded, or taken sick, the company was commanded by noncommissioned officers. This should not be; it can be remedied in future by increasing the corps of cadets, thus supplying officers for growing needs.

The other recommendations of the board are judicious, and the Department will carry them out as far as it can; but where appropriations are necessary, it is recommended that they be granted so that the important work of the Academy may be conducted with the best possible results.

ADJUTANT-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,

Washington, November 11, 1898.

SIR: I have the honor to submit the following summary of my annual report:

THE REGULAR ARMY.

On the 1st of April the strength of the Regular Army, just before the breaking out of the war, was 2,143 officers and 26,040 enlisted men, including hospital corps, engineers, and the signal corps. By the act of March 8, 1898, the artillery arm was increased by two regiments, to be composed of twelve batteries each, two of which, in each regiment to be organized, in the discretion of the President, as field artillery.

By general orders issued April 20, 1898, the equipment of each battery of light artillery was directed to include 6 guns and caissons, 1 combined forge and battery wagon, and 100 horses.

The act of April 26, 1898, prescribed the peace conditions of each regiment of infantry to consist of two battalions of four companies each and two unmanned companies, and authorized the President, upon declaration of war, to establish a third battalion of four companies each in the infantry arm, and increased the enlisted strength of a company of infantry to 106, a troop of cavalry to 100, a battery of heavy artillery to 200, of each battery of light artillery to 173, of each company of engineers to 150, and of the signal corps, by the addition of 10 corporals, 100 first-class privates and 40 second-class privates.

Under the authority thus given a third battalion was established for each regiment of infantry, and a sufficient number, not less than 20, of noncommissioned officers and men selected with reference to their ability to assist in the instruction of the recruits, was ordered to be transferred to the new companies from other companies of the same regiment, and the company, troop, and battery organizations provided for in that act were ordered recruited to their war strength.

Under the authority conferred upon the President by section 4 of the act of April 26, 1898, he directed, July 13, 1898, an increase of the artillery arm of the service by the addition of 84 second lieutenants over and above the number provided by the act of March 8, 1898.

In view of the then possibilities of the near future, this office on the 16th of March last recommended an increase in the regular infantry, and submitted a draft of "A bill for the better organization of the line of the Army of the United States." This bill is published in full in my report, and also your letter of March 16, submitting it to Congress with your recommendation.

The following table exhibits the strength of the Regular Army for each of the four months following the declaration of war with Spain, as shown by the latest returns on file in this office:

Organization.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
General officers and staffs	535	2, 074	535	5, 012	550	6, 553	548	7, 980
Cavalry	435	7, 835	430	9, 912	419	10, 591	419	11, 594
Artillery	305	7, 660	317	9, 065	369	11, 308	369	12, 454
Infantry	916	15, 296	916	17, 533	989	18, 683	987	22, 458
Miscellaneous		8, 569		8, 191		6, 496		1, 879
Totals	2, 191	41, 934	2, 196	49, 513	2, 327	53, 931	2, 323	56, 365
Enlistments in Regular Army		9, 569		9, 311		6, 586		3, 400

a Includes 5,365 men of Hospital Corps, which are exclusive of authorized strength.

Three hundred and eighty-seven officers of the Regular Army were appointed in the several grades in the Volunteer Army, as indicated below:

Major-generals	15	Surgeons	44
Brigadier-generals	45	Paymaster	1
Assistant adjutants-general	58	Engineers	22
Inspectors general	16	Ordnance officers	21
Judge-advocates	3	Signal officers	12
Quartermasters	43	Officers of volunteer regiments	86
Commissaries of subsistence	21		

THE VOLUNTEER ARMY.

By the act of April 22, 1898, providing for the temporary increase of the military establishment of the United States, the organized and active land forces were declared to consist of the Regular Army and of the militia of the several States when called into service, constituting two branches, designated, respectively, as the Regular Army and the Volunteer Army of the United States.

Section 6 provided that "When the members of any company, troop, battery, battalion, or regiment of the organized militia of any State shall enlist in the Volunteer Army in a body, as such company, troop, battery, battalion, or regiment, the regimental, company, troop, battery, and battalion officers in service with the militia organization thus enlisting may be appointed by the governors of the States and Territories, and shall when so appointed be officers of corresponding grades in the same organization when it shall have been received into the service of the United States as a part of the Volunteer Army."

The same section further provided that the President may authorize "the Secretary of War to organize companies, troops, battalions, or regiments, possessing special qualifications, from the nation at large, not to exceed 3,000 men, under such rules and regulations, including the appointment of the officers thereof, as may be prescribed by the Secretary of War."

Section 7 authorized the recruitment to the maximum strength of all the accepted organizations in the volunteer force, and provided for the organization of regular and volunteer troops into divisions of three brigades, each brigade to be composed of three or more regiments, and authorized the President, whenever three or more divisions are present in the same army, to organize them into army corps, each corps to consist of not more than three divisions. By section 13 not more than one officer of the Regular Army could hold a commission in any one of the regiments of the Volunteer Army at the same time.

Finally, by the act approved May 11, 1898, Congress authorized, in addition to the volunteer forces provided by the act of April 22, the organization of a volunteer brigade of engineers from the nation at large, to consist of not more than three regiments and not more than 3,500 men possessing the special qualifications for engineer troops, the officers of this brigade to be appointed by the Secretary of War. The same act authorized also the organization of an additional volunteer force, not exceeding 10,000 men possessing immunity from disease incident to tropical climates, the officers of this force to be appointed by the President, by and with the advice and consent of the Senate.

Under authority conferred upon him by the joint resolution of April 20 and the act of April 22, 1898, the President issued a proclamation, dated April 23, 1898, calling for volunteers to the number of 125,000 men, to be apportioned as far as practicable among the several States, Territories, and the District of Columbia, according to population, to serve for two years unless sooner discharged.

The apportionment under this call aggregated 5 regiments and 17 troops of cavalry, 16 batteries of light artillery, 1 regiment and 7 batteries of heavy artillery, 119 regiments and 10 battalions of infantry.

May 25, 1898, the President issued a proclamation calling for an additional force of 75,000 men. For controlling military reasons it was determined to utilize so much of this additional force as was necessary to bring up the several State organizations in service to the full legal strength, the remainder to be apportioned among the several States and Territories according to their respective quotas as nearly as possible. The apportionment under this second call comprised 16 batteries of light artillery, 3 battalions of heavy artillery, and 22 regiments, 10 battalions, and 46 companies of infantry.

In view of the imminence of war with Spain, and in anticipation of the action of Congress and of the call of the President for volunteers, carefully prepared regulations were issued April 22, 1898, for the guidance and government of the numerous prospective mustering officers whose duty it would be to critically inspect the volunteer organizations that would be offered for muster into the service of the United States. The general orders, circulars, etc., are attached to the report in appendix for the muster, instruction, health, welfare, and comfort of the volunteers, whether in the field, in camps, in hospitals, on furlough, etc.—in fact, under all conceivable

conditions—from the date of their reception into the service of the United States until their final discharge from military duty.

The following table exhibits the strength of the volunteer army at the several periods indicated:

Strength of the Volunteer Army.

Organization.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Major-generals	11	.....	12	.....	18	.....	21	.....
Brigadier-generals	25	.....	70	.....	70	.....	71	.....
Adjutant-General's Department	54	.....	98	.....	100	.....	99	.....
Inspector-General's Department	19	.....	30	.....	27	.....	25	.....
Judge-Advocate-General's Department	6	.....	7	.....	8	.....	8	.....
Quartermaster-General's Department	34	.....	32	.....	114	.....	121	.....
Subsistence Department	25	.....	87	.....	106	.....	108	.....
Medical Department	19	.....	84	.....	99	.....	113	.....
Pay Department	12	.....	65	.....	80	.....	86	.....
Corps of Engineers	10	.....	24	.....	28	.....	28	.....
Ordnance Department .....	.....	.....	.....	.....	25	.....	24	.....
Signal Corps	10	.....	101	897	112	1,089	111	1,173
Engineers .....	.....	.....	81	704	108	2,458	150	3,286
Cavalry	285	5,972	292	6,920	292	7,221	289	7,003
Heavy artillery	83	1,836	83	2,010	93	2,540	92	2,570
Light artillery	69	1,706	84	2,979	120	4,405	120	4,265
Infantry	5,562	109,006	5,069	139,845	7,238	185,748	7,319	188,947
Total	6,224	118,580	7,169	153,355	8,633	203,461	8,785	207,244

The patriotic response of the several States under the first call for volunteers and the activity of the officers detailed for duty in mustering troops are sufficiently indicated by the fact that on May 31, 1898, a little more than a month after the President's call for volunteers, nearly 125,000 men had been mustered into service. The muster in of the three regiments of cavalry was completed by May 30; that of the ten regiments of infantry (immune) by July 30; that of the three regiments of engineers by August 20; the last volunteer organization being mustered in August 24, 1898.

The aggregate strength of the Regular and of the Volunteer armies for each of the months of May, June, July, and August was as follows:

	Officers.	Enlisted men.	Grand total.
May:			
Regular Army	2,191	41,934	44,125
Volunteer Army	6,224	118,580	124,804
Aggregate	8,415	160,514	168,929

	Officers.	Enlisted men.	Grand total.
June:			
Regular Army.....	2, 198	49, 513	51, 711
Volunteer Army.....	7, 169	153, 355	160, 524
Aggregate.....	9, 367	202, 868	212, 235
July:			
Regular Army.....	2, 327	53, 931	56, 258
Volunteer Army.....	8, 633	203, 461	212, 094
Aggregate.....	10, 960	257, 392	268, 352
August:			
Regular Army.....	2, 323	56, 365	58, 688
Volunteer Army.....	8, 785	207, 244	216, 029
Aggregate.....	11, 108	263, 609	274, 717

The suspension of hostilities, resulting from the short but brilliant operations of the army against Santiago, Cuba, leading to its capture and that of the Spanish forces defending the city, the surrender of the Spanish troops in Porto Rico, no less than the successful operations of our troops in the Philippines, led to the determination to muster out 100,000 men, nearly one-half of the entire volunteer force, and the first order looking to that end was issued on the 18th of August last.

Since the signing of the protocol the officers and men of the volunteer regiments have remained at their posts of duty, in most cases at great personal sacrifice. It is desirable, however, that a speedy increase of the Regular Army may be provided for in order that the volunteers may be released from further service and be allowed to return to their peaceful vocations.

The officers of the Regular Army detailed to make the examination and muster in of the volunteer regiments, also the officers detailed for mustering out volunteers, performed their duty with promptness and with great care.

STAFF ORGANIZATIONS.

If, as recommended in another part of the report, additional officers are given the line of the Army, so as to give plenty of trained officers for staff duty in time of war, it is believed that a general reorganization of the staff or the adoption of new systems will not be found desirable. Under the present system the great and successful campaigns of Grant, Sherman, and Sheridan were conducted; it has worked well in our Indian wars, and it is confidently asserted that when the work of the staff departments in this war is more fully understood it will receive the approval of military men and of the people generally.

MILITARY GEOGRAPHICAL DEPARTMENTS.

Important considerations led, early in the year, to a comprehensive rearrangement of the several geographical departments into which, for facility of military administration, the country is divided. Five new departments, those of the Lakes, the Gulf, Santiago, Porto Rico, and the Pacific, were created; the department of the Missouri was reconstituted; the departments of the Platte and of Texas discontinued; and the geographical limits of other departments were rectified.

The declaration of the war with Spain made the defense of the entire Atlantic seaboard against possible attack a question of the utmost importance. With this object in view, the governors of the several littoral States were freely consulted, and their active cooperation enlisted in favor of providing temporary garrisons, drawn from the State militia, for those exposed points where no defenses containing heavy guns existed, or where the defenses had either no garrisons or only small ones. Infantry supports were drawn, while war was in progress, from some of the volunteer infantry, heavy artillery, and light batteries organized under the first call for troops, and the organizations were recruited to war strength of twelve companies. The number of men so utilized was, approximately, 12,000. After cessation of hostilities, in July last, the infantry supports were transferred to inland camps, the withdrawal being completed by September 1, 1898.

ARMY CORPS.

On April 15, 1898, the regiments of the Regular Army, with few exceptions, were ordered to proceed to designated points in the South.

On April 23, 1898, the troops assembled in the Chickamunga National Park (Camp George H. Thomas) were constituted a provisional army corps, under Maj. Gen. John R. Brooke.

By direction of the President, May 7, 1898, seven army corps were constituted, embracing both the regular and volunteer branches of the Army; and later, June 21, the forces comprising the Philippine expedition were constituted an army corps, to be known as the Eighth.

The subjoined table exhibits the strength and distribution of the Army by departments and army corps.

Command.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Department of California..	98	2, 176	87	1, 716	70	1, 745	100	2, 390
Department of Colorado...	45	966	39	1, 250	41	1, 329	40	1, 516
Department of Columbia...	21	431	38	997	41	1, 256	43	1, 416
Department of Dakota.....	24	662	16	722	67	2, 056	32	955
Department of the East.....	530	12, 093	586	15, 576	577	17, 240	804	23, 248
Department of the Gulf....	230	4, 921	232	5, 792	249	7, 228	280	7, 262
Department of the Lakes..	18	221	31	597	28	646	20	185
Department of the Missouri	23	757	20	591	20	508	19	522
First and Third Corps.....	2, 191	42, 036	2, 004	56, 544	1, 563	42, 260	438	12, 725
Second Corps	903	17, 406	867	22, 624	802	21, 378	768	20, 688
Fourth Corps.....	842	7, 456	763	20, 068	548	13, 485	413	9, 933
Fifth Corps.....	760	15, 657	791	14, 945	890	18, 619	518	14, 347
Seventh Corps.....	406	8, 847	781	18, 375	909	23, 193	1, 025	27, 817
Eighth Corps (Department of the Pacific)	636	13, 179	865	22, 124	917	22, 536	899	22, 046
Porto Rico.....					877	9, 084	641	16, 332
Department of Santiago							299	6, 748
At State camps, en route, at recruiting stations, on furlough, etc	2, 080	33, 716	2, 227	20, 957	3, 861	74, 739	4, 771	95, 479
Grand total.....	8, 415	100, 514	9, 367	202, 868	10, 960	257, 392	11, 108	263, 609

CASUALTIES.

A statement is given of the several actions in which troops were engaged during the war with Spain and of the losses sustained by them from April 21 to August 13, 1898, including the names of all officers killed and wounded.

Grand total of casualties in killed and wounded during the war with Spain.

Where.	Killed.		Wounded.	
	Officers.	Enlisted men.	Officers.	Enlisted men.
Cuba	23	237	90	1,332
Porto Rico.....		3	4	36
Manila.....		17	10	96
Total	23	257	118	1,464

The number of deaths from all causes, between May 1 and September 30, inclusive, as reported to the Adjutant-General's Office up to October 3, were: Killed, 23 officers and 257 enlisted men; died of wounds, 4 officers and 61 enlisted men; died of disease, 80 officers and 2,485 enlisted men. Total, 107 officers and 2,803 enlisted men, being an aggregate of 2,910 out of a total force of 274,717 officers and men, or a percentage of $1\frac{1}{3}\frac{1}{100}$.

BREVETS AND MEDALS OF HONOR.

A board of officers will soon be convened, in accordance with your instructions, to examine all recommendations for brevets and medals of honor for services in Cuba, the Philippines, and Porto Rico.

INCREASE OF THE REGULAR ARMY.

A bill is now being prepared providing for an increase of the Army, which will be ready to submit upon the assembling of Congress.

It is believed that the number of officers should be increased, by one first lieutenant to each troop, battery, and company, for reasons stated in full in the report; and it is recommended that all officers below the rank of major, serving in the West Indies and the Philippines, shall have the pay and allowance of the next higher grade.

GENERAL OFFICERS.

The requirements of probable service in Cuba and elsewhere call for an increase of general officers in the permanent establishment. There should be at least an increase of two major-generals and four brigadier-generals. Provision for the grade of lieutenant-general is called for by the best interests of the public service.

ADJUTANT-GENERAL'S DEPARTMENT.

Brig. Gen. Samuel Breck, an officer of high order and ability and of long and faithful service, was retired February 25, 1898, under the provisions of law, and the undersigned succeeded to the office of adjutant-general.

Five officers of the Department have been appointed brigadier-generals of volunteers, namely: Cols. Michael V. Sheriden, Theodore Schwan, and Lieut. Cols.

Arthur MacArthur, John C. Gilmore, and John B. Babcock, and one has been promoted to major-general of volunteers for distinguished service in the battle of Manila, namely, General MacArthur.

MILITARY INFORMATION DIVISION.

The publications of this division, including maps and handbooks of Cuba, Porto Rico, and the Philippines, have been numerous and widely distributed.

MISCELLANEOUS.

In the report a number of minor matters are considered. A modification of the act of August 1, 1894, in regard to enlistments, is recommended, to the end that the enlistment of natives for service in regiments serving in Cuba, Porto Rico, and the Philippines may be authorized; statistics are given as to the recruiting service; an increase of the appropriation for the militia is recommended, as also for the post-graduate schools at Forts Leavenworth, Monroe, and Riley; suggestions are made for the improvement of post schools and lyceums. Increased rank should be provided for officers serving as military attachés. It is suggested that the number of yearly Presidential appointments to the Military Academy be increased to twenty, and that two appointments at large be authorized to be nominated by the Senators from each State; that the pay of noncommissioned officers be increased; that regimental bands be increased, and that the clerical force at Army and Department headquarters be reorganized.

THE ADJUTANT-GENERAL'S OFFICE.

Owing to the large increase of business following the declaration of war with Spain, the number of temporary clerks appointed in this office has steadily increased, and is now 141, largely composed, since the cessation of hostilities, of men from the Regular and Volunteer Army, who, having the requisite qualifications, were thus partially rewarded for the trials and hardships endured by them in the service. The physical endurance of the force has been taxed to the utmost. It has labored, regardless of hours, with a gratifying degree of success, considering the serious inconvenience resulting from crowded rooms and the growing insufficiency of space for the office records and files.

To the officers serving in the office acknowledgment for their devotion and faithful and intelligent performance of duties under trying conditions is freely made.

The uniform courtesy and cooperation of the heads and officers of other staff departments are gratefully acknowledged. Under all the trying conditions there has not been a sign of discord. All have vied with each other in an intelligent and faithful performance of duty. The clerical force of the office has been no less diligent and faithful and richly deserve recognition.

Very respectfully,

H. C. CORBIN, *Adjutant-General.*

THE SECRETARY OF WAR.

The foregoing report summarizes the legislation enacted by Congress increasing the Regular Army and providing for an Army of Volunteers during the war with Spain.

Attention is invited to the suggestions and statistics contained in the report of the Adjutant-General, and to his various recommendations, which are judicious and merit the favorable consideration of Congress.

The recommendation in my report last year is renewed, that military attachés to embassies be given the rank and pay, while serving, of colonel; and the attachés to legations be given the rank and pay of lieutenant-colonel, while serving, or at least the rank and pay of major. The reasons for this are well stated by the Adjutant-General in his full report.

Instead of the increase of pay for officers serving in the West Indies and the Philippines, recommended by the Adjutant-General, viz, the pay and allowance of the next higher grade for all officers below the rank of Major, it is recommended that their pay, as also the pay of those stationed in Alaska, be increased 50 per cent while so serving; this because of the additional expense of serving in those countries.

INSPECTOR-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, D. C., November 7, 1898.

SIR: In compliance with instructions, the following summary of matters mentioned in the annual reports of this department for 1898, and possibly requiring legislative action, is submitted:

THE NATIONAL GUARD.

Recent experiences have shown that our militia system could advantageously be reconstructed and a more intimate relation established between it and the National Government.

SMALL ARMS.

The National Guard should be armed with the same kind of rifles as the Regular Army, if we wish the most effective service. Besides, the difference in the manual of arms prescribed for differently constructed rifles, and want of interchangeability of ammunition, are apt to cause confusion and delay where prompt action is required.

SUPPLY DEPOTS.

The great number of volunteer regiments moving to the centers of concentration without arms or uniforms, and the subsequent difficulties in meeting their needs promptly, suggest the establishment of reserve or supply depots at convenient points, in order that each State, on call, can put its quota in the field in condition for service, at least as far as arms and equipments go.

STRATEGIC STAFF.

The great need in the Army to insure coherence, promptness, and efficiency in the field is a strategic staff, composed of highly trained and trustworthy officers, such as possessed by all continental armies, who, free from the overwhelming details of paper work, can give their undivided attention to the systematic preparation and execution of all important military affairs. Such a staff would permit no symptom of chaos, hold all to their full and proper work, and mold the organized forces and control their movement so they would respond to their slightest touch.

CAMPS AND MANEUVERS.

To secure better cohesion between the National Guard and regulars and the greatest efficiency of the troops in the field, funds should be provided for combined encampments and periodical military maneuvers and experimental mobilization in times of peace, as is customary with all first-class European powers. One of the most serious defects noted during the Spanish-American war was the inexperience and utter disregard for the most elementary principles of military life in large camps.

INDEMNITY FUND.

It has been found that crops and fencing of farms and other property are occasionally damaged in the movements and maneuvers of troops. Such damages are generally slight, and if they could be paid immediately it would be an act of justice, insure the good will of the people, and avoid much labor and expense in effecting a settlement afterwards. It is recommended that a small sum be appropriated for this purpose, as is done by other civilized nations.

TRANSPORTATION ON THE SEA.

It seems apparent, in view of future movements of troops made necessary by our changing national policy, a transport system should be organized and the control of this important service most completely organized or confided to the Navy. During the transmarine expeditions much friction is apt to be developed between captains engaged with each vessel and whoever controls affairs and their movements, whether a quartermaster, naval officer, or the commander of the troops aboard, which might interfere, seriously in some cases, with the prompt accomplishment of the task imposed upon the military commander.

PACK TRAINS.

As pointed out in former reports, in military operations over rough country the use of wheeled transportation is very limited, and pack trains become of prime importance; and it is suggested that a system be devised by which the Government can have a corps of trained civilian teamsters and packers for this service. Obviously, soldiers should not be taken from the fighting line for this purpose, even if fit. It is of moment that the employees be expert in their work, as untrained hands may within a week cripple the transportation of an army. The depletion of the trained transportation at many military posts years ago seems felt as a serious injury throughout every effort at mobilization now.

HOSPITAL CORPS.

It has been clearly demonstrated that the proportion of hospital stewards and trained hospital corps men to the fighting force is far too limited and should be increased, say to about 4 to 8 per cent for the firing line or entire service.

RATIONS.

The component parts of the ration as now fixed by law should be changed or made more elastic to meet the new conditions of service in the tropics; and articles required by convalescing patients, suffering from fever and disturbances of the alimentary tract, should be added to some branch of supply.

MILITARY COLLEGES.

If the permanent force is to be increased, it is recommended that the annual selection of a few of the most efficient military students for appointment to the Army under suitable regulations be made a settled policy; and that college organizations seeking active service be given a chance to join the forces in future calls for volunteers. It would give increased impetus to the study of military science and tactics at these institutions and establish closer relations between these organizations and the Government.

INSPECTOR-GENERAL'S DEPARTMENT.

In the recent mobilization and concentration of the Regular and Volunteer armies, the great lack of capable and well-organized inspectors-general was severely felt, particularly during the earlier stages, when the inexperienced troops were suffering for want of such attention as only an inspector, unhampered by other duties and working under central supervision and with the conscious support of the highest authority, can give. It is recommended that the law be amended so as to authorize an assistant inspector-general for each brigade, and one with the rank of colonel for the corps or higher commands; and that all should undergo a preliminary examination to demonstrate their suitability and efficiency. At present the smallest part of an army corps entitled to an inspector is the division, and that has been found too large for one inspector to look after thoroughly and do all that ought to be allotted to officers of this Department in the field.

It is also urgently recommended that the clerical force of the Inspector-General's Office and Corps be increased to meet the increased demands upon it adequately and efficiently.

Very respectfully,

J. C. BRECKINRIDGE,

Inspector-General.

THE SECRETARY OF WAR.

The following extracts are from the report of Major-General Breckinridge, who went with Major-General Shafter's command, by order of the Major-General Commanding the Army, to observe the movements of troops in Cuba, June 5 to July 25, 1898:

ON BOARD TRANSPORT HUDSON,

En route from Santiago de Cuba to the United States, July 25, 1898.

SIR: The energy with which every element was driven from first to last will be sufficiently understood when such men as General Shafter and Colonels Humphrey and Weston had the task in hand. The liberality with which every necessary

article was purchased that could be found in the market goes without saying. But the means for expediting the landing of stores seemed inadequate, even to the last, and it is understood that lighter after lighter, ordered to the Cuban coast, was sunk at sea; and the lack of quick communication between the vessels or of any launches was apparently irremediable. The extent to which the transports suffered in their ground tackles, capstans, small boats, and other paraphernalia, and the dread their masters had of even greater loss on such a surf-beaten, rock-bound shore, was constantly shown, and the Navy appeared to leave the Army at last much to its own devices.

It was natural to suppose that there might well be heavy loss in such an adventure at at least three points, to wit: The landing place, at some intermediate fortified position, like San Juan, and in the final assault or contest; but all the loss in battle was concentrated practically in the single battle of the 1st and 2d of July. The several organizations appear content with how they played their own part and with their immediate commanders, and look upon the demands made upon them as at least up to the usual powers of man and worthily met.

Great security was given to the enemy by the blockhouses, wire entanglements, etc., created during the long course of defensive construction for the purpose of dominating the country from the insurgents; and it is remarkable that such ubiquitous defenses were not more frequently defended. Special interest was given to this battle, where our men for the first time faced smokeless powder in rapid-fire Mauser guns, handled by men in invisible rifle pits, to whom every ford and road were absolutely familiar objects. To most of our enlisted men, all of whom were regulars but three regiments—the First Volunteer Cavalry, Second Massachusetts, and Seventy-first New York—this was the first battle against a civilized foe. In peace our Army is administered rather by posts and departments, and our staff officers are diligent at their desks, especially in the bureaus. Now the regiments and brigades were recognized in campaign, where nearly every officer is performing unwonted duties, even among the regulars, so there are some of the usual indications of unfamiliar occupations.

On the 28th the reenforcements land and go into camp near Siboney. On the 29th General Shafter came ashore with his staff, moved out to the front, and there established his headquarters beside General Lawton's. General Ludlow had assumed command of his brigade and reconnoitered the commanding ground on the left of the road well beyond El Poso.

We were told when we entered upon this campaign that it was necessary above all things to sleep off the ground, and hammocks were recommended to secure this end. Some were seen in the original bales on the transports, and it is doubtful whether the soldiers could have carried hammocks in addition to what they already have to carry. Even such heavy intrenching tools as were on hand were felt to be a burden.

Perhaps it is possible to make a hammock that will at once furnish shelter and keep the soldier from the ground, which would have a material effect in preserving the health of the soldier during the rainy season in this climate. That there should be any suffering or ill health along the firing line for lack of food, clothing, modern arms, or other supplies may appear either temporarily necessary or hardly credited, according to the point of view; especially during the days it seemed no tents and

but little eating, and no animals were possible, on the advance or fighting line. The need of witnesses from every corps and bureau of the Army may not have been appreciated, if, indeed, any were needed. What the Army cheerfully endured and accomplished with its valor deserves the clearest appreciation, and has, doubtless, received it; and protection against unnecessary deprivations is, of course, always assured.

Some men, notably among the volunteers, started out carrying overcoats. These were left on the transports or quickly abandoned. In some cases even blankets, blouses, and underclothing were thrown away. Knapsacks were strewn along the roadsides. And yet it is almost as difficult in this climate to keep warm at night as it is to keep cool in the daytime, as there is hardly a night when a covering is not needed in addition to the usual clothing worn, and never a day when the usual clothing is not uncomfortably warm. What became of personal property wherever left will possibly prove a problem to some to solve.

A serious question that seems ever to return for sufficient consideration is, What shall be done with the soldier's heavy pack when he goes into action? Shall he carry it with him, weighing him down in the charge and pursuit, or shall he throw it aside, never to see it again, perhaps? In the battles of July 1 and 2 it became, in most cases, a physical necessity to throw the pack aside. In some cases regiments deposited their packs by the roadside and marched some miles after the battle to recover them again. In others, packs were thrown haphazard into the bushes, and in many cases were never recovered by their proper owners. Apparently the Cubans and sick found some comfort from the owner's loss.

It has certainly been clearly demonstrated in this war that smokeless powder is an absolute necessity for both small arms and field guns. Often we fought for hours against an invisible enemy who was firing fatally upon us all the time. The volunteers, as soon as the Springfields were fired, at once revealed their position and drew the fire of the enemy, besides hiding the enemy from their view. They found it difficult to contend with an invisible enemy pouring in an effective fire from a position impossible to determine.

General Shafter seemed to perform six men's work, and the organizations displayed a coherence and power that won universal admiration and made every call upon the forces fully met, from squad and company leader up, under circumstances illustrated by the successive loss of four brigade commanders within a half hour.

If any recognition is to be fairly given to the staff work of such a famous military expedition, attention is perhaps doubly due the supreme labors of Col. C. F. Humphrey and Col. J. F. Weston, who did more work and endured more than many men are capable of, and they are working at a financial loss, since their commutation of quarters is stopped. And Lieut. Col. G. McC. Derby, of the Engineers, and some of the medical officers have labored in their line with unending energy and under difficulties and dangers rivaling past records of their corps. What man could do these men have done.

Always throughout his career good judges seem to have recognized that in every exigency of campaign and battle Lawton was capable of adequately performing more than was ever assigned to him, though some of the severest military tasks and duties

have been performed by him. This judgment still stands well established, though the command of a division of regulars and the front and swinging right wing of an invading and assaulting army have been intrusted confidently to his command. The reserve force and quiet self-control with which every step in action was conducted equaled his proverbial energy, endurance, courage, and tenacity. And it is believed his immediate commander (General Shafter), whose force and energy are also phenomenal, appreciates the soldierly qualities of his loyal subordinate fully, as on his recommendation promotion has been given for conduct on the field of battle; but as an eyewitness this testimony to well-proven military merit may be also permitted to the Inspector-General of the Army.

Of course his immediate superiors, both in advance of and since the Santiago expedition, have carefully determined the military and personal qualities of the commanding officer of this expedition; but if permitted me, it seems due that I shall bear willing testimony to the remarkable energy, decision, and self-reliance which characterized General Shafter's course during this distinguished military adventure throughout its arduous course to its most honorable conclusion. At every stage of this proceeding General Shafter was the dominant spirit at the scene of action. Oppressed by sickness and overweighted with responsibilities and care, he carried the fate of his army to a successful and glorious issue. And any precedent is rare where amidst such natural obstacles, and dangers, and limited means, and opposing defenses, a more numerous, well-disciplined, and gallant force capitulated to invaders who had upon their fighting line a smaller force than that surrendered. The glory of this belongs to General Shafter and his army and the Administration sustaining it. And whatever influence was felt from this army toward the driving out and destruction of the Spanish fleet may also go to its credit.

Very respectfully,

J. C. BRECKINRIDGE,

Major-General of Volunteers and Inspector-General U. S. A.

The question of payment for damages to farms and other property by movement of troops will be the subject of a communication to Congress during the ensuing session.

JUDGE-ADVOCATE-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, OFFICE JUDGE-ADVOCATE-GENERAL,

Washington, October 3, 1898.

SIR: I have the honor to submit the following summary of my annual report for the twelve months ending August 31, 1898:

The number of trials by general court-martial in the Regular Army was 1,245, which is 139 less than last year. The number of trials by general court-martial in the Volunteer Army up to August 31, 1898, inclusive, was 635. The number of convictions of desertion in the Regular Army was 176, which is 68 less than last year; and the number in the Volunteer Army was 18.

These figures are only approximately correct, as not all the records of the trials promulgated prior to September 1, 1898, have been received, owing to the fact that the Army is widely scattered.

At the last session of Congress an act was passed making the summary court the regular permanent inferior court-martial, both in time of peace and of war; and there has also been issued a new Executive order fixing the limits of punishment. These two measures have been adopted in order to remove defects in the system of administration of military justice which the experience of the Army had pointed out; and the system is now on a good footing, with one exception. This exception is the lack of power on the part of courts-martial to compel civilian witnesses to testify. There have heretofore been failures of justice on this account, and during the present year a general court-martial sitting in an important case has been shut off from material evidence by the refusal of civilian witnesses to answer legal questions. It is to be hoped that Congress will afford some relief—if not by giving general courts-martial the power to punish for contempt, at least in such other form as may be deemed best.

The number of officers in the Judge-Advocate-General's Department has been insufficient to meet the demands made upon it, even with the small army we have had. With an army enlarged as it seems likely that ours will be, the increase of the Judge-Advocate-General's Department will be necessary. It now consists of only eight officers. With an army of 100,000 men, or even 75,000 men, double that number would be required.

Very respectfully,

G. N. LIEBER,
Judge-Advocate-General.

The SECRETARY OF WAR.

The Judge-Advocate-General points out the fact that there have been failures of justice by reason of the lack of power on the part of courts-martial to compel civilian witnesses to testify. It is hoped that the necessary legislation may be enacted to afford relief in this respect.

There is now need of an increase in the corps of judge-advocates, and this need will be the greater if the Regular Army is increased.

The amount of the reward for the apprehension of deserters was formerly left to the discretion of the Secretary of War. For many years \$30 was the amount designated; this not being considered sufficient, it was increased to \$60. In 1894 Congress prescribed that the amount should be \$10. This amount is entirely insufficient, and the Judge-Advocate-General reports that, in the opinion of many who are in the best position to judge, it encourages desertion. A return to the former system, whereby the amount of the reward was regulated by the Secretary of War, was urged in the last annual report, and the necessary legislation is again recommended.

QUARTERMASTER'S DEPARTMENT.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, October 31, 1898.

SIR: In accordance with your request of the 18th instant, I have the honor to submit below a summary of my annual report for the fiscal year ended June 30, 1898, which also covers all important transactions of this Department down to the close of hostilities with Spain, August 12, 1898:

There was appropriated for the regular service of the Quartermaster's Department for the fiscal year ended June 30, 1898, the sum of \$7,711,367.75, of which the sum of \$340,154.71 remained undrawn at the close of the fiscal year.

There was also appropriated for this Department by act approved May 4, 1898, for deficiencies, available until January 1, 1899, the sum of \$19,550,000, and by act approved July 7, 1898, a further sum of \$103,200,000, making a total of \$130,461,367.75 provided by Congress for the purposes of this Department.

With all the perplexing difficulties confronting the Department in the matter of clothing and equipage supplies, it is remarked that in the short period of three and one-half months an army of 275,000 men was equipped with such supplies, and it is further remarked that the army in Cuba, consisting of nearly 16,000 men, leaving their tentage behind, arrived at their camp at Montauk Point, New York, and found a complete new outfit of tents and clothing ready there for them.

The issues to the militia of the several States and Territories during the fiscal year amounted to \$189,870.72.

For the maintenance of the Indian prisoners of war, held captive at Fort Sill, Okla. Territory, the sum of \$8,234 was expended.

From April 1, to August 31, which covers the period of hostilities, this Department purchased 36,800 horses and mules, at an aggregate cost of \$3,871,890.08; 5,179 wagons of all kinds, at a cost of \$478,111.10; and 28,012 sets of harness, at a cost of \$358,449.18.

During the war period there was also purchased 5,130 field ranges, at a cost of \$106,742, and 5,434 field desks, at a cost of \$38,471.80.

Eighty-three thousand and seventy-eight tons of coal were contracted for, for use of transport vessels.

TRANSPORTATION BY RAIL AND WATER.

During the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of materials.

From April 1, 1898, to the breaking up of Camp Wikoff, the aggregate movements of troops by rail amounted to 17,863 officers and 435,569 men.

The total movement of troops by transport ships up to September 15, 1898, amounted to 92,836, as follows:

	Men.
To Cuba.....	28, 195
To Porto Rico	17, 460
To Manila	16, 405
To Honolulu.....	629

	Men.
Returned from Cuba	21, 686
Returned from Porto Rico.....	5, 541
Civilian employees transported	2, 920
Total	92, 836

The orders for the movement of the regular troops to Chickamauga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898.

The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. These troops were moved with the most satisfactory dispatch and an entire absence of accident.

On May 13 the Adjutant-General sent to the Quartermaster-General the first orders for the movement of volunteers—a separate order for each organization—designating the point of destination. The volunteer troops have gone to destinations with promptness and remarkable freedom from accident or delay en route.

Low rates were secured by the Quartermaster's Department in making these movements, generally not exceeding 1½ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit was provided, under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of 10 tourist sleepers, 2 kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

The sum of \$90,757.34 was expended during the fiscal year to maintain, including repairs, the eleven vessels owned by this Department, which is exclusive of the transports chartered and purchased for the prosecution of the war with Spain.

From the declaration of war to June 30, 1898, this Department chartered for service on the Atlantic and Gulf waters 43 vessels, with a total tonnage of 104,201 and a carrying capacity of 1,287 officers, 22,335 men, with their arms, ammunition, equipment, medical and subsistence supplies, and 6,746 animals. There was also chartered 4 water boats, with a total capacity of 820,000 gallons; 3 lighters, 2 tugs, and 1 barge; also 2 barges purchased.

In addition to the above there were chartered for the Signal Service of the Army the steamship *Adria*, used as a cable boat; the steamship *Fasita* for the Secret Service, and the steamer *Gretchen* for inspection purposes.

The operations of the navy in the harbor at Manila required that provision be made for the transportation of troops and supplies to the Philippines.

Fourteen ships were chartered to June 30, 1898, on the Pacific coast, having a total tonnage of 41,152 and carrying capacity of 629 officers and 13,059 men with their complete outfit of camp and garrison equipage, arms, ammunition, medical and subsistence stores for a voyage of over 7,000 miles.

The combined fleets on the Atlantic and Pacific coasts at the close of the fiscal year consisted of 69 vessels of various classes, with a total tonnage of 145,353 tons and carrying capacity of over 37,000 men.

To convert the vessels composing these fleets from their ordinary uses as freight vessels into safe and commodious transport ships required considerable alteration. Sleeping accommodations for the men and stalls for the animals had to be constructed, largely increased water capacity had to be provided by the construction of extra tanks and the supply of barrels and casks, and provision made for pure-air ventilation. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship. Special care was given to the fitting out of the transports on the Pacific coast so as to provide for the long voyage to Manila.

The total expenditures for fitting up these vessels (as far as reported) to June 30, 1898, amounted to \$186,632.68, which includes the sum of \$7,694.30 for fitting up the steamship *City of Peking*, which was chartered by the Navy Department and turned over to the War Department for transportation of the Army.

The total sum paid for the services of vessels under charter to June 30, 1898, was as follows:

On Atlantic coast and Gulf waters	\$1, 007, 952. 50
On Pacific coast.....	319, 764. 17
Total	1, 327, 716. 67

To provide for the transportation of the sick and wounded, this Department purchased from the Maine Steamship Company the steamship *John Englis* for the sum of \$450,000. This ship was fitted up at considerable expense as a hospital ship, and every appliance provided for the care, comfort, and treatment of the sick and wounded. The expenditure for refitting amounted to \$136,851.11. This hospital ship was renamed *Relief*, and is under the control of the Medical Department of the Army.

Since the close of the fiscal year the steamship *Missouri*, used by the Medical Department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's Department at an expenditure of \$85,854.

Since the 1st of July, 1898, there have been chartered four vessels for service on the Atlantic coast and the same number on the Pacific coast.

There were also purchased for the service of the Army on the Pacific Ocean two large, commodious steamships, the *Scandia* and *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean.

The Secretary of War directed the purchase of 14 large steamships to be fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies. These 14 steamships have a total tonnage of 61,298 tons and carrying capacity of 12,700 men and 6,750 animals. To fit these vessels up comfortably to meet the urgent demands of the Army required an expenditure of \$178,018.37. It is the intention to carefully overhaul all of these vessels and refit them for the army transport service.

The aggregate cost of the 16 steamships purchased by the Government, which includes the *Scandia* and *Arizona*, heretofore mentioned, was \$6,231,000. Total cost of tugs, barges, and lighters amounted to \$245,300.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last, for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for a voyage to the vicinity of Havana, distant about 400 miles. The vessels carried with them 153 small boats, having a carrying capacity of 2,500 men. The fleet also had two decked barges which were provided by the Engineer Department. One of the steam lighters, the tug, and one decked barge failed to reach Cuba.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than 16,000 men, with their 2,295 animals, equipments, ammunition, subsistence, and medical supplies, on a voyage of 1,000 miles.

This entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army difficulty was encountered by reason of the lack of sufficient means for lightering the transports which could not approach the small dock at Daiquiri, and this office was advised of the needs of the command. Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, Fla., which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow—the *Ora*, *Ben*, and *Touart*—the former chartered, the last two purchased, by the Department, was dispatched, with orders to proceed direct to Santiago, and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, was dispatched to Santiago from New Orleans. These tugs lost all their barges and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam-lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition, with a large force of mechanics of various trades, and laborers, with machinery, such as pile drivers, implements for construction of docks and railways, with the necessary materials, iron and lumber, for building docks, lighters, repairing railroads and engines. The company was furnished the steamship *Panama*, and two fine ocean tugs, the *Gladiolen*, which was chartered, and the *Gypsum King*, which was purchased. This outfit proceeded to Santiago and thence to Ponce, Porto Rico, where their services have been of great value in the operation of the army in that harbor.

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army. The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, having been selected as a reception camp for the returning army, preparations were made for the safe and speedy landing of the troops as they arrived and for the supplies required by them. For this

purpose there were chartered eight small vessels and two flatboats, besides the steamer *Shinnecock*, 1,205 tons burden, which was employed to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment.

The movement of troops to Porto Rico consisted of about 16,000 men, 3,367 animals, with their artillery, equipments, and supplies, and a large quantity of ammunition and army wagons. Of these troops 5,581 men, with 256 convalescents, have been returned to the United States.

Seventeen large steamships and one large sailing vessel were chartered by this Department for the transportation of troops and supplies to the Philippine Islands, besides the two steamships purchased for this service. Transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

Upon the acquisition of the Hawaiian Islands, the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel, 11 officers and 313 men, who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

TRANSPORTATION OF SPANISH PRISONERS OF WAR.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American army, it was agreed that transportation should be furnished by the United States Government for the Spanish prisoners of war to Spain, and to provide subsistence for them while en route. The proposal submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted. The rates to be paid under the terms of the contract were for commissioned officers \$55 per capita and for enlisted men \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company (Limited), Hamburg-American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co. (Limited), North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons & Co. (Limited), and Wilson & Furness Leyland Line (Limited), which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival, or demurrage to be paid at the rate of 60 cents per capita per day, passenger capacity; if passengers are on board during such delay, 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but desire, if necessary, an extension of time to include the entire month of August.

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number trans-

ported to \$1,312,915, whereas the contract entered into had no demurrage conditions and the actual sum paid was \$513,860.

The Government decided to include in the transportation the wives and children of the officers, and the priests and sisters of charity who had been in service in the hospitals and with the Spanish army.

The embarkation began on August 9, 1898, and was completed on September 17, 1898, and 22,864 persons were embarked.

The cost for this service, as above stated, amounted to \$513,860.

WEEKLY STEAMSHIP LINE.

The permanent occupation of the islands of Cuba and Porto Rico by the army has rendered necessary the transportation of large quantities of army supplies to those islands, and also the mails for the troops. It was, therefore, determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York. This line was opened Wednesday, August 31, 1898, since which time a steamship has sailed from New York every Wednesday for Ponce and Santiago, and return.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

MILITARY POSTS AND BARRACKS AND QUARTERS.

The sum of \$1,170,000 was appropriated during the last fiscal year for the above-named purposes, which was duly apportioned for the construction, repair, and alteration of public buildings at the various military posts and for rent. Special construction and improvements have been ordered from the appropriations for military posts at Fort Ethan Allen, Vt.; post near Seattle, Wash.; Jefferson Barracks, Mo.; Fort Point, Tex.; Fort Harrison, Mont.; Plum Island, N. Y.; post near Spokane, Wash.; Willets Point, N. Y., etc.

CAMPS FOR THE TROOPS.

During the war camps were established for military purposes at Tampa, Fla.; Mobile, Ala.; Camp George H. Thomas, Ga.; Camp Alger, Va.; Camp Poland, Knoxville, Tenn.; Jacksonville, Fla.; Miami, Fla.; Fernandina, Fla.; Camp Wikoff, N. Y.; Camp Hamilton, near Lexington, Ky.; Camp George G. Meade, Pa.; Camp Wheeler, Huntsville, Ala., and Camp Shipp, Anniston, Ala. All necessary temporary storehouses, hospitals, and other buildings were erected or hired and tents floored. Water facilities were arranged for either by driven wells, pumping plants, or by connecting camps with city water mains. To insure a supply of good water many of the camps were furnished with a number of approved portable filters, and one with boilers for boiling water.

During the latter part of April, 1898, five buildings were rented at Key West, Fla., for a general hospital. An office and storeroom were also rented, and temporary buildings constructed for kitchen, dining room, closets, etc., and a water-

supply system, including distilling plant, installed for the hospital and post at Key West Barracks, Fla., at an approximate cost of \$20,682.25.

Many of the buildings at Fort McPherson, Ga.; Fort Myer, Va.; and Fort Thomas Ky., were used as general hospitals.

On July 3, 1898, instructions were given for the erection of tents and temporary buildings on the Fort Monroe, Va., Reservation for a general hospital to accommodate 500 patients and 100 attendants. The work was completed July 23, 1898, at a cost, exclusive of tents, of \$5,016.12.

On July 20, 1898, the Secretary of War authorized the establishment, near Fort Monroe, Va., of a pavilion hospital of 1,000 beds. A tract of land on the line of an electric railway, about 2 miles from the post, was leased at \$500 per annum, and on this site the buildings and improvements are in course of completion, the cost to September 30, 1898, being reported as \$90,276.

The sum of \$20,000 was authorized for a distilling plant at the Philippine Islands, including machinery for taking water from a tower to a higher level and providing larger camps with water from one or more sources of supply.

GRAVES AT SANTIAGO.

In accordance with the orders of the President, the chief quartermaster at Santiago, Cuba, on August 10, 1898, was instructed by cablegram to take immediate steps to erect temporary markers and prevent effacement of any markers erected at soldiers' graves at Santiago. A capable and reliable employee of this department was sent to Santiago, Cuba, by this office, with directions to report to Maj. Gen. H. W. Lawton, commanding that department, for the specific duty of erecting suitable markers at the graves of our soldiers at Santiago and vicinity. He was especially instructed to ascertain the exact location of our dead, securing, if possible, the names, ranks, companies, regiments, and dates of death of all soldiers buried there, also names and dates of death of employees and other American citizens who had been interred there since the Army landed in Cuba, making a complete record thereof, and take prompt measures for the erection of wooden markers at said graves until permanent ones could be supplied. He was further directed to make such examination of this subject as to be able to report and identify the burial places of every United States soldier and American citizen buried at Santiago and vicinity, and at the same time prepare a complete record of every case, showing exact location of each burial site, in order that the identification of the place of burial of all our soldiers and citizens can hereafter be ascertained with accuracy. He reported his arrival at Santiago on August 31, 1898, and upon completion of this important work will submit full and detailed report to this office.

Under the act of Congress approved July 8, 1898, the sum of \$200,000 was appropriated to enable the Secretary of War, in his discretion, to cause to be transported to their homes the remains of officers and soldiers who die at military camps, or who are killed in action, or who die in the field at places outside of the limits of the United States.

No definite plans have yet been formulated by the Department in regard to the removal of the remains to the United States, but the subject is under consideration.

NATIONAL CEMETERIES.

There are 83 national cemeteries and 75 superintendents. The interments in these cemeteries to June 30, 1898, were 337,296. During the fiscal year all the necessary improvements and repairs have been made to all these cemeteries and the grounds kept in good condition.

ORGANIZATION.

Congress, on July 7, 1898, passed an act "to increase the efficiency of the Quartermaster's Department of the Army," which authorized the Secretary of War to make such distribution of the duties and labors of the Quartermaster's Department, as well as the assignment of its officers to important and special lines of duty, as might be deemed for the best interests of the service.

Under the provisions of the above-mentioned law, this Department has been enabled to largely increase its efficiency by a proper distribution of the work, and a more advantageous assignment of its officers.

TAMPA DEPOT.

A résumé of the work done by the quartermaster's department at Tampa, in the short space of four months, is as follows:

Army corps equipped	2
Freight cars handled (loaded or unloaded).....	13, 239
Officers and men transported	66, 478
Horses and mules transported	15, 309
Horses and mules received	1 389
Horses and mules issued	9, 919
Wagons "set up"	604
Teams "broken out" (six mules)	141
Teams "broken out" (four mules)	520
Pack trains equipped	21
Wagons and ambulances repaired	699
Transports fitted out	33
Transports cleared	78

TAMPA, FLA., AND SANTIAGO.

Col. C. F. Humphrey (now brigadier-general, United States Volunteers), Chief Quartermaster, arrived at Tampa, Fla., May 1, 1898, and the following day, at the request of General Shafter, took charge of the quartermaster's department at that place, so far as pertained to the fitting out of the expedition to Cuba. The same day he was placed in charge of the quartermaster's department at Tampa by telegraphic order from the honorable the Secretary of War. He accompanied the expedition to Santiago and attended to the unloading of the transports at the latter place. His work at both these points was of the most important and laborious character, and was efficiently administered.

DEPOT AT PONCE, PORTO RICO.

Lieut. Col. J. W. Pullman, quartermaster, U. S. A., sailed from Tampa, Fla., on the steamer *Rita* on August 15, 1898, for Ponce, Porto Rico, with a full supply of

quartermaster stores, employees, etc., for the purpose of establishing a quartermaster's depot at that place, from which to issue all necessary supplies required by the troops operating there. He arrived at Ponce on August 22, 1898, and established a temporary depot at that place.

DEPOT AT HONOLULU.

Lieut. Col. George Ruhlen, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), is the officer of this department who has been assigned to duty as depot quartermaster at Honolulu, where he arrived on August 28, 1898, and established a quartermaster's depot there from which all the United States troops stationed at that point can be promptly supplied with all quartermaster supplies.

MANILA, PHILIPPINE ISLANDS.

Lieut. Col. J. W. Pope, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), is the chief quartermaster at this station.

Owing to the length of time required for mail communication no detailed report of operations of the Quartermaster's Department in the Philippine Islands has as yet been received.

OCCUPATION OF CUBA BY UNITED STATES FORCES.

Officers of this Department have been ordered to duty at Havana, Matanzas, Nuevitas, Gibara, Cienfuegos, and Manzanillo, Cuba, with a view to making every preparation possible for the United States troops previous to their arrival at the places named.

CONCLUSION.

In concluding this report I desire to state that this office, during the war, has constantly kept in view the fact that the all-important duty devolving upon this Department was to provide for and promptly furnish the Army with all needful quartermaster supplies. For months the most energetic efforts have been made to the accomplishment of this purpose. Practically everything needed for the largely increased Army had to be purchased or manufactured and then transported to the numerous camps.

I feel deeply indebted to the officers of this Department for their valuable assistance in the accomplishment of the heavy task placed upon this branch of the public service. They deserve the highest credit for service efficiently performed.

I also gladly bear testimony to the zeal, fidelity, and intelligence with which many of the volunteer officers of this Department have performed the important duties committed to them.

It is not only a matter of duty on my part, but also one of great pleasure, to here record my sincere appreciation of the able and efficient service of the officers associated with me in this office. They justly deserve the highest possible commendation for their intelligent and loyal discharge of the responsible and laborious duties imposed upon them. Day and night have they been at their posts of duty rendering invaluable assistance, and only with their constant and untiring helpfulness has this office been able to promptly dispose of the immense volume of work coming daily to this office for consideration and action.

EMPLOYEES.

I do not forget the clerks and other employees serving in this office and throughout the Department at large. Without their assistance the work of this Department could not have been accomplished during the war emergency. Many of the permanent and experienced employees rendered most invaluable and efficient service, some often working twelve and fifteen hours a day, including Sundays and holidays. In a number of cases, by reason of their efficiency and experience, employees at department headquarters were required to leave their homes and families to go to the field, and thereby were put to considerable expense without receiving additional compensation. These employees devoted all their energies to the interest of the public service. I strongly recommend that some action be taken by Congress to recompense all regular employees of this Department who performed this extraordinary service at a time when such service was of the greatest importance to the Government. A 20 per cent increase of their pay for one year would not be more than they justly deserve.

MEMORIAL BRIDGE.

I renew the recommendations of my predecessor that an appropriation be made by Congress for the construction of a bridge over the Potomac River between the Naval Observatory grounds and the Arlington Reservation, which will furnish a short and direct route to the cemetery and park, and afford rapid communication between the Capitol and the large military post of Fort Myer, Va. This is an important matter, and it is hoped it may receive the consideration of Congress at its coming session.

ESTIMATES.

The estimates for the ensuing fiscal year differ from the appropriations for the current fiscal year as follows:

	Increase.
Regular supplies.....	\$12, 200, 000
Incidental expenses.....	3, 300, 000
Horses for cavalry and artillery.....	715, 000
Barracks and quarters	1, 750, 000
Army transportation	27, 513, 875
Clothing and equipage.....	13, 769, 431

Because of the fact that the estimate is made for 160,000 men instead of 25,000.

	Increase.
Construction and repair of hospitals	\$60, 000
Quarters for hospital stewards	13, 000

Because of increased accommodations required and urgent repairs shown to be necessary in the estimate submitted by the Surgeon-General of the Army.

	Increase.
Repairing roads to national cemeteries	\$7, 000

Because of much-needed repairs which in the past it has been impossible to make because of insufficiency of appropriations provided.

	Increase.
Military posts	\$380, 000

Because of the necessity for the construction of barracks and quarters in connection with the modern seacoast armaments involving the establishment on the coast of new military posts, and the enlargement of others.

Respectfully,

M. I. LUDINGTON,
Quartermaster-General, U. S. A.

The SECRETARY OF WAR.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, November 25, 1898.

The amount of transportation that went with General Shafter's command, which embarked on June 14, from Tampa to Santiago, according to report of General Humphrey, is as follows:

Draft mules	946
Pack mules	390
Government horses	578
Private horses	381

Total animals	2,295
Army wagons	114
Escort wagons	81
Red Cross ambulances	7

Total vehicles	302
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The amount of transportation sent to Santiago from June 14 to August 24, as far as can be shown from the records of this office, is as follows:

Draft mules	877
Pack mules	130
Total animals	1,007

Army wagons	71
Escort wagons	41
Ambulances	35
Signal Corps wagons	2
Field telegraph wagon	1
Wire wagons	2
Telephone wagon	1
Tool wagons	2
Total vehicles	155

M. I. LUDINGTON,
Quartermaster-General, U. S. A.

Statement of chartered vessels of the Quartermaster's Department.

ATLANTIC AND GULF COASTS.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Transports.</i>		1898.	1898.		
Comal	New York and Texas S. S. Co	Apr. 29	Oct. 25	a \$825.00 b 575.00	2,934
Alamo	do	Apr. 29	Sept. 23	a 600.00 b 550.00	2,943
Rio Grande	do	May 10	Aug. 26	500.00	2,566
Leona	do	May 10	Aug. 29	500.00	3,329
San Marcos	do	May 10	Sept. 8	500.00	2,837
Concho	do	May 10	Sept. 23	550.00	3,704
Lampasas	do	June 13	Aug. 13	650.00	2,237
Nueces	do	June 13	Sept. 16	650.00	3,367
Vigilancia	New York and Cuba Mail S. S. Co.	May 10	Sept. 18	600.00	4,115
Seguranca	do	May 10	Sept. 30	600.00	4,115
Orizaba	do	May 10	Sept. 17	500.00	3,497
Yucatan	do	May 10	Sept. 30	500.00	3,525
Seneca	do	May 10	Sept. 29	450.00	2,729
Saratoga	do	May 10	Sept. 21	450.00	2,820
Santiago	do	May 10	Sept. 3	450.00	2,359
City of Washington	do	May 10	Sept. 15	450.00	2,648
Manteo	do	May 28	Oct. 7	200.00	583
Gussie	Southern Pacific Co.	Apr. 30	Sept. 11	350.00	998
Whitney	do	Apr. 30	Sept. 2	350.00	1,337
Morgan	do	May 12	Aug. 31	400.00	994
Arsunaa	do	May 12	Sept. 3	400.00	1,156
Clinton	do	June 8	Sept. 11	400.00	1,187
Allegheny	Merchants and Miners' Transportation Co.	Apr. 29	Sept. 12	a 600.00 b 550.00	2,014
Berkshire	do	do	do	a 600.00 b 550.00	2,014
D. H. Miller	do	do	Sept. 3	a 600.00 b 550.00	2,296
Florida	Plant Investment Co.	May 2	Sept. 9	600.00	1,786
Olivette	do	Apr. 3		a 500.00 b 450.00	1,611
La Grande Duchesse	do	July 5	Sept. 2	1,200.00	5,018
Tarpon	do	July 10	Oct. 2	250.00	450
Catania	Tweddle Trading Co.	June 13	Sept. 13	600.00	3,700
Cherokee	Wm. P. Clyde & Co.	May 11	Aug. 22	500.00	3,557
Iroquois	do	do	Aug. 18	600.00	2,944
Comanche	do	June 3	Sept. 2	640.00	3,202
Matteawan	Miami Steamship Co.	May 11	Aug. 24	600.00	3,300
Miami	do	May 13	Aug. 24	550.00	3,050
Knickerbocker	Cromwell Steamship Co.	June 3	Sept. 21	400.00	1,642
Louisiana	do	do	Aug. 12	500.00	2,849
Hudson	do	June 9	Sept. 6	400.00	1,800
Breakwater	New Orleans Belize Royal Mail Steamship Co.	May 12	Sept. 10	340.00	500
Stillwater	do	May 16	Nov. 2	325.00	1,019
Wanderer	do	July 5	Sept. 10	220.00	531
Unionist	Henry Hanaw (Angier Line)	June 10	Sept. 23	a 375.00 b 325.00	2,158
Specialist	do	June 3	do	a 425.00 b 375.00	2,802

a First thirty days.

b After 30 days.

Statement of chartered vessels of the Quartermaster's Department—Continued.

ATLANTIC AND GULF COASTS—Continued.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Transports—Continued.</i>					
		1898.	1898.		
Gate City.....	Ocean Steamship Co.....	June 6	Aug. 18	\$500.00	1,997
City of Macon.....	do.....	do	Aug. 26	580.00	2,098
Arcadia.....	New York and Porto Rico Steamship Co.	June 15	Sept. 2	250.00	2,317
Uto.....	H. P. Kirkham.....	July 20	Sept. 14	165.00	899
Fanita (Secret Service).....	James McKay.....		Sept. 8	150.00	.....
<i>Signal Service.</i>					
Adria.....	Western Union Telegraph Co.....	Apr. 21	Aug. 15	200.00	519
<i>Water boats.</i>					
Anne Stevens.....	W. S. Vanaman.....	May 13	Nov. 1	50.00	a100,000
Barge S. O., No. 77.....	Standard Oil Co.....	May 14	Aug. 7	100.00	a100,000
Maverick.....	do.....	May 16	Sept. 2	500.00	a440,000
Kanawha.....	John A. Donald.....	June 3	Oct. 3	175.00	a180,000
<i>Steam lighters.</i>					
Bessie.....	Galveston S. S. & L. Co.....	May 24		50.00	185
Laura.....	do.....	do	Oct. 6	50.00	185
Cumberland.....	Cumberland Steamship Co.....	June 1		50.00	119
<i>Tugs.</i>					
Gladisfen.....	William E. Myers.....	July 11		90.00	110
Underwriter.....	La Branch Pilots' Association, New Orleans.	July 8	Oct. 2	160.00	171
Nimrod.....	H. T. Hartwell.....	June 25	July 15	80.00	110
Captain Sam.....	W. Chase Spotswood.....	June —	July 9	75.00	93
Triton.....	Morse & Co., New York.....	Aug. 6	Oct. 1	212.50	.....
<i>Lighters.</i>					
Ora.....	W. C. Taylor.....	June 25	July 2	10.00	60
S. S. Mantee.....	New York and Cuba Mail Steamship Co.	Oct. 19	(b)	300.00	583
S. S. Bratten.....	W. D. Munson.....	Nov. 11	(b)	{ c 105.00 d 130.00 }	705
Tug Gladisfen.....	Wm. E. Myers.....	Nov. 13	(b)	120.00	110

The following were chartered for use at Montauk Point:

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Steamers.</i>					
		1898.	1898.		
Shinnecock.....	Montauk Steamboat Co.....	Aug. 30	Sept. 22	\$1,000.00	1,205
Vigilant.....	John Delany.....	Aug. 11	Oct. 1	100.00	150
<i>Steam lighter.</i>					
Columbia.....	James P. McAllister.....	Aug. 15	Oct. 3	60.00	175
<i>Tugs.</i>					
James A. Lawrence.....	Alfred Dutch.....	Aug. 10	Oct. 9	75.00	86
A. W. Booth.....	Michael Moran.....	Aug. 15	Sept. 24	75.00	118
Lewis Palver.....	John Nichols.....	Aug. 11	Oct. 4	50.00	71

a Gallons.

b Chartered for Cuba.

c First 21 days.

d After 21 days.

Statement of chartered vessels of the Quartermaster's Department—Continued.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Barges.</i>		1898.	1898.		
Arthur		Aug. 13	Oct. 4	\$40.00.	.....
Curry .....		.....do.....	.....do.....	40.00	.....
Newkirk		Sept. 2	Sept. 3	25.00	.....
Baxter		Sept. 3	Sept. 4	15.00	.....
Wm. H. Vanderbilt		Aug. 16	Oct. 7	40.00	.....

Statement of vessels chartered by Quartermaster's Department, Pacific coast.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate of charter.	Tonnage.
		1898.	1898.		
Australia	Oceanic Steamship Co.....	May 10	Aug. 29	a \$20,000	2,755
Zealandia .....	.....do.....	May 27	.....	a 20,000	2,489
Ohio	Empire Transportation Co .....	.....do.....	.....	a 25,000	3,488
Indiana .....	.....do.....	June 8	.....	a 25,000	3,158
Pennsylvania .....	.....do.....	July 7	.....	a 25,000	3,186
City of Sydney	Pacific Mail Steamship Co	May 10	Aug. 30	b 1,000	3,000
China .....	.....do.....	May 27	Sept. 23	b 1,500	5,000
City of Para .....	.....do.....	June 11	.....	b 1,000	3,532
Colon .....	.....do.....	May 27	Sept. 7	b 750	2,700
Newport .....	.....do.....	June 20	.....	b 1,000	3,000
Peru .....	.....do.....	June 25	Nov. 2	b 1,000	3,500
City of Rio de Janeiro .....	.....do.....	July 7	Oct. 22	b 1,000	3,548
Morgan City	Johnson-Locke Mercantile Co.....	June 7	Nov. 3	b 600	2,300
Senator	Pacific Coast Steamship Co.....	June 8	.....	b 1,000	2,409
City of Puebla .....	.....do.....	June 23	.....	b 900	2,623
Valencia	Pacific Steam Whaling Co	June 19	.....	b 650	1,198
St. Paul	Alaska Commercial Co	July 19	.....	b 1,000	2,440
Tacoma (sailer)	Alaska Packers' Association	July 11	.....	b 200	1,738

Statement of vessels purchased by the Quartermaster's Department.

Name.	Tonnage.	From whom purchased.	Date of purchase.	Amount paid for vessel.
			1898.	
Panama, No. 1	2,085	Captured	June 21	\$41,000
Port Victor, No. 2	2,792	Irwin, McBride, Catherwood & Co	July 8	175,000
Rita, No. 3	2,194	Captured	July 8	125,000
Mohawk, No. 20	5,658	Bernard N. Baker	July 14	680,000
Mobile, No. 21	5,780	.....do .....	.....do.....	680,000
Massachusetts, No. 22	5,673	.....do .....	.....do.....	680,000
Manitoba, No. 23	5,673	.....do	July 20	680,000
Minnewaska, No. 24	5,796	.....do	July 26	680,000
Mississippi, No. 25	3,732	.....do	July 14	350,000
Michigan, No. 26	3,732	.....do .....	.....do.....	350,000
Roumanian, No. 27	4,126	Austin, Baldwin & Co	July 12	240,000
Obdam, No. 30	3,656	Samuel D. Coykendall	July 1	250,000
Berlin, No. 31	5,641	International Navigation Co	July 13	400,000
Chester, No. 32	4,770	.....do	July 27	300,000

a Per month.

b Per day.

Statement of vessels purchased by the Quartermaster's Department—Continued.

Name.	Tonnage.	From whom purchased.	Date of purchase.	Amount paid for vessel.
<i>Hospital ships.</i>				
Relief.....	3,095	Maine Steamship Co.....	1898. May 20	\$450,000
Bay State.....	777	State of Massachusetts.....	Nov. 15	100,000
<i>Tugs.</i>				
Britannia.....	135	Baker-Whitely Coal Co.....	July 14	40,000
Sarah.....		Long Island Machine and Marine Construction Co.	....do....	6,800
Gypsum King, ocean...	581	J. B. King Transportation Co.....	July 25	150,000
Major McKinley.....	60	Frederick A. Verdon.....	Nov. 7	13,000
Olympic.....		do.....	Nov. 19	12,000
Harry.....		G. H. Hill.....	Nov. 26	6,000.00
J. C. Watson.....		J. D. Dailey.....	Nov. 28	14,000.00
<i>Steam lighters.</i>				
Eugene Graselli.....		Gustav A. Schwas.....	Nov. 25	39,500.00
Adonis.....		W. C. Cahill.....	Nov. 26	26,000.00
Edward L. Ward.....		E. L. Ward.....	Nov. 7	26,000.00
<i>Lighters.</i>				
L. E. Rinehardt.....		Bernard Campbell.....	July 13	5,500.00
Touart.....	200	W. C. Taylor.....	June 25	2,000.00
Ben.....	180	Mobile Coal Co.....	June 27	1,500.00
<i>Barges.</i>				
E. L. Bartley.....		William S. Bartley.....	June 13	5,000
Willie.....	231	do.....	....do....	5,000
Annie.....	123	Old Dominion Steamship Co.....	July 14	10,000
Mocha.....	338	do.....	....do....	10,000
Helen.....	123	do.....	....do....	10,000
<i>Steamships.</i>				
Scandia (Pacific coast) .	4,253	Hamburg-American Line.....	July 5	200,000
Arizona (Pacific coast) .	5,000	Northern Pacific Rwy. Co.....	July 16	600,000

When war was declared the Department was amply provided with all necessary clothing and equipage supplies for the then existing small army of 25,000 men, but had no equipments for the volunteer soldiers, and no transportation for so large an army, such as horses, mules, wagons, ambulances, harness, etc.; neither had it a single transport ship.

The Department has purchased 36,800 horses and mules, 5,179 wagons, 559 ambulances, 28,012 sets of harness, and 83,078 tons of coal for vessels—chartered 77 vessels for the Atlantic, Gulf, and Pacific coasts, and purchased 16 steamships, which are now the property of the United States, in excellent condition. Mr. B. N. Baker, of Baltimore, Md., generously tendered the use of the steamship *Missouri* to the United States, with the services of her captain and crew. She has been fitted

out as a hospital ship, and is a most excellent and valuable one. The hospital ship *Relief* was also of great service.

The small hospital ship *Bay State* has recently been purchased from the Massachusetts Relief Association. She cost that association \$175,000. The amount paid by the Government was \$100,000. She is fitted out in first-class order and can be used in the shallow waters around the islands. The vessel ran between Porto Rico, Santiago, and Boston during the war, conveying the sick soldiers of Massachusetts regiments.

The cost of transporting the Spanish prisoners to Spain amounted to \$513,860.

A weekly steamship line has been established by the Department, sailing every Wednesday from New York for Ponce, Santiago, and return.

The graves of our soldiers in Santiago and vicinity and in Porto Rico and the Philippines are being carefully marked and a complete record is being made. So soon as plans now under consideration are completed, the remains of these officers and soldiers will be brought to the United States and transported to their former homes under the act of Congress approved July 8, 1898, which appropriated \$200,000 for the purpose.

MILITARY POSTS.

The new site tendered by the citizens of Bismarck, N. Dak., for the proposed military post at or near that city has been accepted, and the deeds and title papers for the lands have been transmitted to the Attorney-General, with request for his opinion as to the sufficiency of the papers to vest in the United States a valid title to the premises in question. If in his opinion the title is good, action will be taken at once to begin the construction of the post under the appropriation made therefor by the sundry civil appropriation act approved July 1, 1898 (30 Stats., 629).

Upon the recommendation of this Department certain public lands, situated near Sheridan, Sheridan County, Wyo., have been reserved by Executive order for the purpose of a military reservation, it being the intention of the Department to ask an appropriation by Congress to establish there a military post.

In March, 1898, an order was issued for the abandonment of Whipple Barracks, Ariz., but upon further consideration it was decided to withhold the order, since which time a detachment of troops has been kept at the post guarding public property. The necessity for the continu-

ance of Whipple Barracks as a military post is, in the opinion of the Department, imperative, and it is recommended that an appropriation of \$75,000 be made for the reconstruction of the buildings and other appurtenances at the post, which are very much needed.

SUBSISTENCE DEPARTMENT.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington, October 17, 1898.

SIR: I have the honor to submit the following summary of my annual report:

The settled practice of the Department has heretofore been to limit the scope of its annual reports to the transactions of the fiscal years ending on June 30; but owing to the importance of transactions which were begun prior to that date in 1898, and which have been continued in unbroken sequence to the present date, the limit of June 30 has in some instances been exceeded in the present report, in order that a connected view of a portion of the incidents of the war with Spain may be given.

The personnel of the Department on April 1, 1898, consisted of 22 officers. Appropriation for the subsistence of the Regular Army of 25,000 men had been made for the fiscal year ending June 30, 1898, amounting to \$1,650,000. Of this sum \$314,314 remained undrawn from the Treasury on April 1. The acts passed by Congress on the breaking out of hostilities with Spain placed, successively, the sums of \$2,739,643.50, \$5,000,000, and \$15,367,112.28, or a total of \$23,106,755.78, at the disposal of the Department.

In anticipation of the breaking out of the war, all chief and purchasing commissaries had been advised to make preparation for meeting the demands that would be made upon them as soon as war was declared. Upon the calling out of volunteers and the stationing of troops upon the southern coast, officers of the regular establishment of the Subsistence Department were sent to locate subsistence depots of supply near each considerable body of troops, from which all food of the soldiers was drawn. Upon the establishment of great camps of concentration the same system of locating subsistence depots in close relation to them was followed. By this system the food supply of the men was always accessible to those officers of the combatant forces whose special duty it was to draw and distribute the allowances due to the men.

The acts of April 22, 1898, and July 7, 1898, for temporarily increasing the military establishment, and for increasing the efficiency of the Subsistence Department, added about 120 commissaries of subsistence of volunteers to the Department. As fast as these officers accepted their commissions and qualified by filing their official bonds, they were assigned to duty.

The first objective point of the war was the invasion of Cuba. An army of 16,000 men was dispatched from Tampa, Fla., on June 14, 1898 (within fifty-six days after war had been declared), and subsistence supplies for the entire force for a period of one hundred and twenty days accompanied the expedition. Eight days later reinforcements to the number of 6,400 men were sent, and they were followed imme-

diately by subsistence supplies for the reenforcements to last a period of seventy-six days. Before the end of the month a large cargo of provisions was sent to Cuba with the provisional brigade of the Second Army Corps. These shipments were followed in July, 1898, by other shipments of food supplies, including refrigerated fresh beef sufficient for the supply of the whole command. The supplies of subsistence stores shipped to Cuba were at all times ample for all purposes—our army, Spanish prisoners, and starving Cubans. The returns showing the issues made to the army, the Cuban army, the destitute and prisoners of war in Cuba have not yet been received.

In order to enable surgeons in charge of hospitals to procure needful food for the sick under their charge, General Order No. 116 was issued August 10, 1898, which authorized them to expend from the appropriation, "Subsistence of the Army," the sum of 60 cents per man per day for the period each man was undergoing treatment, and ample provision was made for furlonging convalescents and paying them commutations of rations while traveling to and from their homes.

The provisioning of the troops ordered to Montauk Point was accomplished without difficulty outside of the confusion incident to the occupation of a large camp by a large body of men within a short period of time. There appearing to be a necessity for supplying a portion of the troops assembled thereat, who were not in hospital or who were recuperating after discharge from hospital, with varieties of food differing from the articles of the ration, the Secretary of War ordered the purchase and distribution of large quantities of food of this character, the purchases being made from the appropriation for "Subsistence of the Army."

Rations were sent with the expedition to Porto Rico in quantities to last the command for a period of one hundred days; to the Hawaiian Islands to last for a period of ninety days, and to the Philippine Islands to last for a period of from four to six months.

Field bake ovens and coffee roasters were furnished to troops in the field by the Subsistence Department, and the permanent transfer to the Subsistence Department of the duty of furnishing them is recommended.

Regimental commissaries should be authorized by law, who should be charged with the receipt and distribution of the food supplies of the regiment.

The experience obtained in the recent war with Spain has demonstrated the necessity of having a larger number of commissary-sergeants in service than are now allowed. They were in demand from all quarters, and their services were invaluable in assisting officers in receiving, caring for, issuing, and accounting for subsistence stores. There should be a commissary-sergeant for each regiment in service, in addition to those now authorized for the various garrisoned posts and places of deposit of subsistence supplies, and legislation authorizing their appointment from the noncommissioned officers of the Regular Army is earnestly recommended.

The system of keeping records prescribed by War Department circular of May 15, 1894, failed to meet expectations during a state of war, and had to be partially abandoned in favor of an improvised method. Great confusion and embarrassment resulted, and the experience is not thought to be limited to the Commissary-General's Bureau alone.

The increase of the number of higher grade clerkships in the Commissary-General's Bureau is recommended, in view of the increase of employees necessitated by

the war and the probable continuance of the Volunteer Army in service for some time to come.

As much clerical work has been done beyond office hours, extra compensation should be paid for the extra work, and it is respectfully recommended that the Secretary of War will give the matter his favorable consideration.

Very respectfully,

CHAS. P. EAGAN,

Commissary-General of Subsistence.

The SECRETARY OF WAR.

Amount of articles of the ration issued at Santiago up to October 1, 1898.

	Pounds.	Rations.	Days.
Bacon	1,851,871	2,468,684	154
Roast beef	491,101	982,202	61
Corned beef	32,500	65,000	5
Fresh beef	955,000	764,000	47
Flour	1,775,245	1,577,995	98
Hard bread	1,828,456	1,828,456	114
Baking powder	61,868	1,546,700	96
Beans	317,908	2,119,386	132
Potatoes	1,034,185	1,034,185	64
Onions	219,864	219,864	13
Coffee, green	104,965	1,049,650	65
Tomatoes, 3 pounds	631,620	1,421,145	88
Coffee, roasted	217,430	2,717,875	169
Sugar	383,572	2,557,146	159

Other components of the ration issued proportionately. Issue based on an estimate of 16,000 men.

CHAS. P. EAGAN,

Commissary-General of Subsistence.

The summary of the Commissary-General of Subsistence shows the operations of his department, which was enabled to furnish an ample supply of food for the Army, and also much for the Cuban army and the destitute and prisoners of war in Cuba.

The order issued August 10, 1898, authorized surgeons in charge of hospitals to expend from the appropriation for the subsistence of the Army the sum of 60 cents per man per day for the period each man was undergoing treatment, and ample provision was made for convalescents on furlough.

A personal visit to Montauk Point convinced me that there was need of an issue to the troops just returned from Cuba (many of whom were suffering from the effects of the climate there) of food supplies different from those composing the ration, and accordingly large quantities of suitable food were ordered purchased and distributed to the hospitals, as also to the troops in camp.

Field bake ovens and coffee roasters should be furnished to the troops by the Subsistence Department, as stated by the Commissary-General. These appliances are now provided for in the act making appropriation for the support of the Army, under the heading "Regular supplies, Quartermaster's Department."

The experience of our late war has demonstrated the need of a regimental commissary, and also for a commissary-sergeant for each regiment in service. The recommendation of the Commissary-General in this respect is therefore concurred in.

MEDICAL DEPARTMENT.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., November 10, 1898.

SIR: I have the honor to submit the following as a summary of my report for the year ended June 30, 1898:

THE WORK OF THE MEDICAL DEPARTMENT DURING THE SPANISH WAR.

Medical officers.—The number of medical officers, 192, allowed by law to the Army, is inadequate in time of peace. The insufficiency in time of war was met by the assignment of over 650 contract surgeons under the provision of the act approved May 12, 1898. All volunteer regiments had 3 medical officers appointed by the governors of States. Volunteer surgeons, to fill the staff positions authorized by the act approved April 22, 1898, were appointed by the President: Eight corps surgeons with the rank of lieutenant-colonel, and 110 division and brigade surgeons with the rank of major; 5 of the former and 36 of the latter positions were filled by the appointment of officers of the Army Medical Department. The President also appointed three medical officers for each of the regiments of United States volunteer infantry, cavalry, and engineers. The very small proportion of medical officers having experience of a military character impaired the efficiency of the Department at the outset, but many of the staff surgeons from civil life showed great aptitude for the service and speedily became of value as administrative and sanitary officers.

Hospital Corps.—No provision was made for hospital corps men for the volunteer troops except that which empowered the Secretary of War (act March 1, 1897) to enlist as many privates of the Hospital Corps as the service may require. To provide this corps with the necessary number of men recruiting officers were urged to secure suitable men and medical officers to effect the transfer of men from the line of the Army. General Orders, No. 58, Headquarters of the Army, Adjutant-General's Office, May 31, 1898, authorized the transfer of men from the line of the volunteers to the Hospital Corps of the Regular Army upon the recommendation of the Chief Surgeon and suspended the provisions of Army Regulations governing the Hospital Corps so far as they were inapplicable in time of war and with troops in the field. Commanders of corps and of independent divisions and brigades were charged with the full control of the transfer from the line, the enlistment and discharge of members of the Hospital Corps, the detail of acting hospital stewards, and the appoint-

ment of stewards, the last limited by subsequent orders to 10 stewards for an army corps in addition to those authorized for the volunteer regiments.

The number of men enlisted and transferred during the war was approximately 6,000.

Contract nurses.—The want of a sufficient body of trained hospital corps men necessitated the detail of enlisted men from the regiments for hospital duty in several of the camps and the employment of trained nurses at the general hospitals. Foreseeing the necessity for a large force of the latter, I applied to Congress April 28, 1898, for authority to employ by contract as many nurses as might be required during the war. This was promptly granted. Over 1,700 female nurses have been employed, at first at the general hospitals and later at the field division hospitals when it became evident that the field service purposes for which the latter had been organized would have to give place to the imperative need of caring for the many sick men coming from the regimental camps.

Medical and hospital supplies.—Immediately upon the declaration of war, April 21, steps were taken to obtain medical supplies for the new Volunteer Army. Orders were given, and the manufacture expedited with the utmost dispatch. On May 3, foreseeing that it would be impossible to have ready for issue to the volunteer regiments, as soon as they were mustered in, the necessary articles of field equipment, I telegraphed the governors of the several States for authority to use the medical equipment of the National Guard in the service of the State until our Army medical supplies were ready for issue. Most of the governors, who had field equipment, responded promptly and satisfactorily, but unfortunately many of the State medical departments had no such equipment. Meanwhile the officers in charge of medical supply depots were directed to make arrangements so that supplies could be immediately obtained for 100,000 men for six months.

A field supply table was prepared and approved by the Secretary of War May 9, 1898. It was intended to provide for the needs of commands in active service where only a limited supply of articles could be carried owing to the necessity of restricting transportation. But as soon as it was evident that the troops were likely to be retained in camps of instruction, notification was given that articles on the regular supply table could also be obtained.

To provide, temporarily, for volunteer regiments, supplies of medicines, instruments, hospital stores, stationery, and miscellaneous articles, according to a prescribed list, and packed in convenient boxes, were prepared at the supply depots. An important article to be provided was the first-aid packet, containing antiseptic dressings for immediate use in emergencies and intended to be carried by each individual soldier. These were promptly and liberally supplied. Whenever notice was received from the Adjutant-General's Office that commands were to be moved or camps formed, I endeavored to anticipate the wants of the troops by telegraphing to the officer in charge of the nearest supply depot to forward supplies for the stated number of men according to the field supply table.

Requests from medical officers for supplies and orders based thereon transmitted to the supply depots were largely by telegraph, and orders were given that when the supplies were needed promptly they should be forwarded by express to their destination. When a medical officer desired to purchase medical and other supplies for use in emergencies authority to do so was always granted,

The medical supply depot in New York supplied the posts in New England, the Middle States, and along the Atlantic coast, including Florida, and the troops that have been sent to and are now serving in Cuba and Porto Rico. The depot at St. Louis, Mo., supplied the States of the Mississippi Valley and the region east of the Rocky Mountains, including Texas, the large camp at Chickamauga, and the camps formed at Knoxville, Lexington, Anniston, Huntsville, etc. To provide for the large aggregation of troops at Chickamauga, Ga., a subdepot, drawing its supplies from St. Louis, was organized. The officers in charge of the depots at New York and St. Louis were directed, July 8, to keep in stock 1,000 iron beds or cots with a full supply of bedding ready for immediate use. The distance of San Francisco from the center of the Government was so considerable that the officer in charge of that depot was necessarily given large discretion in the purchase of supplies and the expenditure of funds.

Railroad ambulance train.—On June 16 a railroad ambulance train, consisting of 10 tourist sleepers, a dining car, a private car, and a combination car, was equipped for service and placed under the command of Maj. Charles Richard, surgeon, U. S. A. One assistant surgeon, 2 stewards, 20 privates of the Hospital Corps, and 3 civilian employees were assigned to him for service. The train was amply provided with all the medicines, hospital stores, and comforts required for the patients to be transported.

HOSPITAL SHIPS.

The hospital ship Relief.—On April 15, 1898, I applied for a ship to be used as a hospital ship. On May 18, by direction of the President, the *John Engle* was purchased, and the Quartermaster's Department took charge of her to prepare her for the special service required. Maj. George H. Torney, surgeon, U. S. A., was placed in command of the ship. Specific instructions were sent to him to provide every thing needful so that there might be no delay attributable to the Medical Department, and these instructions were complied with to the letter. The *Relief*, however, was unable to sail from New York until July 2. She arrived at Siboney on the 7th, where she received many of the wounded from the attack on Santiago.

The hospital ship Missouri.—On July 1, 1898, Mr. B. N. Baker, of Baltimore, Md., tendered the steamship *Missouri*, with her captain and crew, to the Government as a hospital ship. Ten days or two weeks was the period estimated as needful to permit of making the necessary alterations and providing the vessel with a steam laundry, steam sterilizing apparatus, and ice and carbonating plants, but it was not until August 23 that the ship was reported ready to sail, and even then a good deal of work had to be done on board during a stormy passage to Santiago.

The hospital ship Olivette.—This vessel was a steamship which had been doing service as a water boat for the fleet of transports when Lieutenant-Colonel Pope, chief surgeon of the Fifth Army Corps, selected her for use as a hospital ship during the voyage from Tampa to Santiago. The equipment of one of the field division hospitals of the corps was used in outfitting her. The *Olivette* answered her extemporized purpose excellently.

The health of the troops.—In my opinion the reduction of the age limit from 21 to 18 years and the haste with which the volunteer regiments were organized and mustered into the service were responsible for much of the sickness which was

reported in the early days of their camp life. All military experience shows that young men under 21 years break down readily under the strain of war service; and every regiment had many of these youths in its ranks. Medical examiners were appointed to testify to the physical qualifications of each man before acceptance, but, notwithstanding this, which at the time was characterized in the press as a very rigorous procedure, so many men were afterwards found on the sick lists of the camps unfit for service, from causes existing prior to enlistment, that special arrangements had to be made for their discharge.

Soon after the newly raised levies were aggregated in large camps sickness began to increase progressively from causes that were so general in their operation that scarcely a regiment escaped from their harmful influence. These causes may largely be referred to ignorance on the part of officers of the principles of camp sanitation and of their duties and responsibilities as regards the welfare of the enlisted men in their commands.

Medical officers, as a rule, were also without experience in the sanitation of camps and the prevention of disease among troops. The few who knew what should be done were insufficient to control the sanitary situation in the large aggregations of men hastily gathered together.

Officers and men in these camps were rife for war, and drill, parades, practice marches, and military camp duties occupied the whole of their time and energies. Considerations of domestic economy and sanitation in the companies and regiments were not given proper attention and men who were being taught to meet the enemy in battle succumbed to the hardships and insanitary conditions of life in their camps of instruction.

The sites of certain of the camps have been instanced in the newspapers as the cause of the sickness which was developed in them; but a review of the whole situation shows that it was not the site, but the manner of its occupation which must be held responsible for the general spread of disease among the troops. On April 25, 1898, foreseeing the likelihood of insanitary conditions in the camps of our newly raised troops, and with the view of preventing them, I issued Circular No. 1 from this office, impressing upon medical officers their responsibility in sanitary matters, and the necessity for a strict sanitary police, particularly in the care of the sinks and in the preservation of the camp area from contamination. But the density of the military population on the area of these contracted camps prevented the possibility of a good sanitary condition. Camps of this character may be occupied for a week or two at a time without serious results, as in the case of national guardsmen out for ten days' field practice during the summer, but their continued occupation will inevitably result in the breaking down of the command by diarrhea, dysentery, and typhoid fever.

Practically nothing was done to make the men comfortable or to remedy the insanitary conditions until these were brought to the attention of the Secretary of War by inspectors sent out by special orders from the War Department. Then the camps held for so long were abandoned, but not before the manifestations of typhoid infection were rife in them. New sites were carefully selected, regimental camps were expanded, company tentage increased, and board flooring provided. Then for the first time the troops went into camps suitable for continued occupation.

One prominent cause of the increase of sickness in the early camps has been commented upon by only a few of our medical officers. These cite the prevalence of drunkenness and of venereal diseases due to the facilities and temptations afforded by the proximity of cities to the larger camps. They hold that if the systems of the men had not been weakened by dissipation they would not have succumbed so readily to the other influences which affected them.

Malarial fevers added to the sick lists of camps in Florida and of Southern regiments in the camps in Georgia and Virginia.

It was, however, typhoid fever which broke down the strength of the commands generally, the outbreak becoming distinctly manifest in July. Sporadic cases appeared in most of the regiments in May and June, these cases having been brought in many instances from the State camps. In fact, some regiments, as the Fifteenth Minnesota, suffered more from this disease at their State rendezvous than any of the regiments in the large Federal camps. A few of the regimental commands in the latter may be said to have escaped visitation. The sanitary conditions affecting the commands in the various camps have been studied in connection with the prevalence of typhoid fever among the men by a board of medical officers consisting of Majors Reed, Vaughan, and Shakespeare, but the results of the investigations of this board have not as yet been reported in full. It appears to me, however, from a general review of the sanitary reports already filed, that the prevalence of the disease was proportioned to the insanitary camp conditions which I have referred to. My circular No. 1, already cited, was intended to bring the danger from this fever to the notice of medical officers, with a view of obviating it. The probability of its communication to soldiers in camp through the agency of flies was pointed out as a reason for insisting on a sanitary police of the strictest character.

It is well known to the medical profession that this fever is propagated by a contaminated water supply, and it is now recognized that the great prevalence of this disease in an aggravated form in the camps of the civil war was due to the use of surface and shallow well waters infected by typhoid excreta. To prevent transmission by the water supply I recommended the use of boiled and filtered water when a pure spring supply could not be obtained, and to enable an efficient filtration of suspected waters to be made field filters of approved construction were issued on my recommendation by the Quartermaster's Department.

The care of the sick and wounded.—As soon as the regiments were organized into brigades and divisions preparatory to active service, it became the duty of each chief surgeon of an army corps to see that the medical department of his command was organized to meet the casualties of battle. The object of the concentration of the troops was to accustom the regiments to operations in which they constituted the units of a higher organization. The experience of the civil war demonstrated that for efficient service in an active campaign the medical department also required a higher organization. Circular No. 3, from this office, dated May 18, 1898, in specifying the duties of the various medical officers in an army corps indicated the character of the organization to be adopted. The seriously sick were to be treated in division field hospitals (unless their transfer to a general hospital was advisable) under the care of the most experienced physicians and able surgeons on duty with each division. Medical officers left on duty with their regiments were

to exercise sanitary supervision over the well men and to determine whether a soldier reporting himself sick should be sent to hospital or remain as a trivial case under treatment in quarters. This consolidation of the medical force by divisions, implying as it did the breaking up of the regimental hospitals, met with a strong opposition from regimental medical officers, particularly from those who were not detailed for special service at the division hospitals. Regimental commanders also were in many instances opposed to it, forgetful that the object of the medical department, as of the line, was to get into training for field service. Similar objections were raised in 1862 and 1863, to the disestablishment of the regimental hospitals, but the civil war lasted long enough to demonstrate the superiority of the divisional system.

The Fifth Army Corps.—Long before this corps embarked for Cuba its field hospitals were in condition for efficient service. Subsequent events, however, rendered valueless these preparations of the Medical Department. When the command embarked on the transport vessels, the baggage wagons and mules were left behind. The ambulance trains of all the divisions, with a large part of the outfit of each of the hospitals, were also left behind. Three ambulance wagons were taken apart and stored on one of the vessels. These did excellent service at San Juan and El Caney. Ten of the ambulances of the Third or reserve divisional hospital were subsequently shipped to Cuba, where they arrived July 2, and were of value in moving the sick and wounded to the hospital at Siboney and to the hospital ships and transports.

Of the property and supplies carried to Cuba, a portion was not available for service at the time it was most needed, to wit, on July 1, 2, and 3, when the wounded from El Caney and San Juan were coming from the front for care and treatment. This was because, in general, no opportunity was afforded to land the medical property. Earnest efforts were made by medical officers to have supplies at the front with the troops. Some having succeeded in getting their medicine chests and other articles of medical property ashore, had these carried forward on litters by hospital-corps men to the camps near Sevilla, while others turned their private mounts into pack horses for this purpose. During and after the battles at El Caney and San Juan there was an insufficiency of tents, cots, bedding, and medicines due to the causes stated, but all the hospitals were well equipped for surgical work.

After the capitulation of Santiago the troops at the front broke down rapidly under the fatigues they had undergone and the malarial influences to which they were exposed; but by this time an ample supply of tents, furniture, bedding, clothing, and medical stores had reached Siboney, together with a corps of trained nurses and a force of surgeons—those sent to duty at the yellow fever hospital being immune to that disease. Meanwhile, to relieve the pressure on the field hospitals, such convalescents and sick as could bear the journey home were sent to the United States on transport vessels. This was an emergency measure to relieve the hospitals at Siboney and permit of the transfer to them of the men who were sick in regimental camps.

The transfer of troops from Santiago to Montauk Point, New York, was also an emergency measure, and the great responsibility of excluding yellow fever infection from every transport rested on the medical officers who had charge of the embarkation. Had they failed in this duty the effect would have been disastrous during the

voyage to the men confined on shipboard, and the risk of importing the disease into this country would have been greatly increased.

In view of the necessity for the return of the troops of the Fifth Army Corps from Santiago, Cuba, preparations were made for encamping them at Montauk Point, Long Island. These included the establishment of temporary tent hospitals, not only for the treatment of the large number of sick brought by each command from Cuba, but for the isolation and treatment of those from transports lying under the suspicion of yellow fever infection.

The difficulties in the way of administering the affairs of the detention hospital were very great, owing to the rapidity with which the transports followed each other in their arrival. As many as four reached the Point on some days from August 13 to 31, most of them bringing sick requiring detention for medical observation. But the sick men were as well cared for and as comfortable in their cots here as afterwards when transferred to the general hospital at Montauk Point. There was an excellent steam disinfecting plant on the grounds with a formaldehyde chamber attached. The laundry work was done at a steam laundry near the hospital.

The temporary hospital, which was locally known as the General Hospital, Montauk Point, consisted of tent pavilions containing 1,600 cots. Its personnel consisted of 40 medical men, 8 stewards, 10 acting stewards, 130 privates of the Hospital Corps, 15 cooks, and 50 male nurses, and an average of about 200 female nurses, one-half of whom were Sisters of Charity. Supplies of all kinds were amply provided.

It is needless to refer at this time to the complaints of starvation which appeared almost daily in the newspapers during the occupation of Camp Wikoff, for it is now generally understood that the weakness, prostration, anæmia, and emaciation of so many of the troops were the results of malarial, typhoid, and yellow fever, from which the army suffered as a consequence of its exposure to the climatic influences and local infections of Santiago and its neighborhood pending and subsequent to the surrender of the city.

Troops in the home camps.—The method of hospital organization in these camps was practically the same, and there was much similarity in the conditions affecting them and correspondingly in their history. Regiments reported provided in but few instances with the material and supplies for their medical care; but they brought sick men with them, and these required immediate care. Provision had to be made for division hospitals in view of future field service and for regimental hospitals in view of the immediate necessity. The difficulties in the way of the contemporaneous accomplishment of these two objects were great, and they were greatly augmented by the inexperience of a majority of the regimental medical officers and of many of the chief surgeons, which prevented them from seeing beyond the immediate necessity. The sick had to be cared for, and to this end medicines and other things had to be procured. Relief societies offered assistance and this was eagerly accepted by many of these medical officers, not alone for delicacies or luxuries not otherwise provided for, but for "supply table" articles which could have been had from the medical purveyors in their camps or by telegraphic requisition on the Surgeon-General. It was easier to accept what was so

freely offered than to learn how to obtain the articles from the proper source. To explain their prompt acceptance of this assistance these officers referred to the red tape of the War Department methods, and the insinuation that the said methods were beyond the comprehension of the ordinary intellect was accepted by the sensational press as an explanation in full.

Meanwhile chief surgeons of corps and divisions began the organization and equipment of their field division hospitals and ambulance companies, but they were met at the outset by the apparent impossibility of securing men for service as cooks, nurses, litter bearers, ambulance drivers, teamsters, etc. The hospital corps of the Regular Army could not supply these men, because recruiting for this corps progressed slowly. The popular tendency to volunteer led men away from the regular recruiting offices. When transfers from the volunteer regiments to the Regular Hospital Corps were authorized, the men did not care to leave their local connections for service in the Army at large as regular soldiers. The transfers so much desired by the Medical Department to enable it to complete its organization were not regarded favorably by line officers, for although every line officer will probably acknowledge, as a general principle, that only the most intelligent and capable men should be employed to care for the sick and wounded, he is not likely to act on this general principle when it is a question of withdrawing for such service the most intelligent and capable men of his own company or regiment.

The division hospitals of the army corps were usually established in the immediate neighborhood of the regimental camps of the divisions. The pavilions were arranged in various ways, according to the configuration of the area available as a site, but in general there was a tendency to crowd the area. Surgeons in charge recognized that a tent should not be occupied by more than six patients, but sometimes this number was exceeded temporarily while waiting an increase of tentage. As a rule, the hospitals were kept in campaigning condition—that is, the tents were neither framed nor floored—until the increased prevalence of typhoid fever attracted attention to their crowded condition, when the object of their existence became suddenly changed from a school for field service to a hospital for the treatment of a local outbreak of disease.

Special-diet kitchens, under the management of capable individuals, were opened at most of the hospitals. Money for this purpose was sent to them by me from funds contributed and placed at my disposal. Money was also sent directly by individuals and by representatives of aid societies, and the Red Cross committees supplied quantities of ice and milk, chicken, eggs, lemons, etc. Pajamas, nightshirts, and other articles of hospital clothing were also provided by the Red Cross and other aid societies. Subsequently the order authorizing the commutation of the sick soldier's ration at 60 cents rendered these hospitals wholly independent of outside assistance.

About July 20 the troops for the invasion of Porto Rico embarked and sailed. The field-hospital accommodation with this expeditionary force was ample and the supplies abundant.

Troops on the Pacific coast.—The troops on the Pacific coast were concentrated mostly at San Francisco, Cal., from which port 18,000 men were dispatched to the Philippine Islands. They were carried on twenty transport steamers, the first expe-

dition sailing on May 25. Each steamship before being accepted by the Government was inspected by a board of medical officers, and in each instance the vessel was thoroughly disinfected before the troops went on board.

The precautions taken to secure a good sanitary condition of the vessels prior to embarkation and the sanitary supervision exercised over the men during their long voyage must be credited with the excellent condition in which the troops arrived at Manila.

DIVISION HOSPITALS.

The want of hospital corps men was the main cause of the failure of chief surgeons to establish their division hospitals promptly. Instead of organizing for field service, their time was occupied and their energies spent in endeavoring to procure the necessary men by enlistment or transfer.

After a time, when sickness invaded the camps and the division hospitals became filled, operations for field service had to give place to the immediate necessity of caring for the sick. The division hospitals became expanded, as at Siboney and Tampa, into base hospitals, with increased needs and increased responsibilities. To these I sent with the utmost dispatch physicians and surgeons under contract, to relieve the strain on the medical officers attached to the troops and trained nurses to relieve the details from the regiments who were temporarily acting as hospital corps men. At Camp George H. Thomas, Ga., the expansions of the division hospitals, under the conditions brought about by the typhoid invasion of the camps, became officially recognized as general hospitals, and were promptly provided by me with the best available medical service, with trained nurses, with all permissible medical and hospital supplies, and with funds for special purchases. The altered conditions under which the division hospitals were operating were immediately recognized by the chief surgeon of the Fifth Army Corps at Santiago on the breakdown of that corps after the surrender of the city, and every effort on the part of his medical officers to care for their sick in regimental hospitals was encouraged by giving them every available facility. Similarly, in other camps, regimental hospitals were in many instances equipped to meet the necessities of the occasion.

General hospitals.—Up to September 30, eleven general hospitals were established and fully manned and equipped. These had a capacity of nearly 7,000 beds. At the same time certain post hospitals having good accommodations were used for the treatment of army cases generally, without alteration of their official status as post hospitals. Those, for instance, at Forts Columbus, Hamilton, and Wadsworth, N. Y., in the East and at the Presidio of San Francisco, Cal., and Vancouver Barracks, Wash., on the Pacific coast, were expanded in this manner. The vacant beds in the hospitals of the Marine-Hospital Service of the Treasury Department were placed at my disposal and the civil hospitals of the country were ready on call to receive and care for sick and wounded soldiers. These offers of hospital accommodations and medical care were accepted by me in many instances, particularly in New York, Boston, Philadelphia, and Providence, to relieve the tent hospitals at Montauk Point when crowded by the rapid transfer of sick from Santiago.

The medical statistics of the war.—The work of gathering up the records of sickness of the various commands in service during the war has been one of great difficulty. Volunteer medical officers were ignorant of the methods of keeping their records,

and many failed to appreciate the importance of what was frequently regarded as "mere paper work" which had no practical bearing on the welfare of their men. Nevertheless their work in this regard must be considered as satisfactory when compared with that of the volunteer medical officers of the war of the rebellion.

My report presents tabulations compiled from monthly reports of sick and wounded rendered from May to September, inclusive, and representing a strength present of 167,168 men. These give full particulars of 1,715 deaths,* of which number 640 were occasioned by typhoid fever, 97 by malarial fevers, and 393 by diarrhea and dysentery. The death rates for May and June—0.46 and 0.70—were not in excess of those of the Army in time of peace. In July the rate became somewhat higher than that of most well-cared-for cities, 2.15 for the month, or the equivalent of an annual rate of 25.80 per thousand living. In August it became excessive—4.08 for the month, equal to an annual rate of 48.96 per thousand. In September the influence of the energetic measures taken in July and August to improve the health of the Army becomes manifest in the falling of the death rate to 2.45, or the equivalent of an annual rate of 29.40. The same progression to an acme in August, with a sudden fall in September, is seen in the various ratios given under the specific titles "Typhoid fever,"

larial fever," and "Diarrheal diseases." This is exceedingly gratifying, and must be credited, as stated, to the sanitary measures adopted; for our experience in the civil war demonstrates that in the absence of these measures the high ratio of August would have been continued for many months to come.

I submit also tables of absolute numbers and of ratios by which the incidence of sickness and mortality of the regular and volunteer troops may be contrasted. From these it will be seen that the exposure of the regular troops during the Santiago campaign gave them from June to September a higher death rate than the volunteers, and that the rate of the latter during August, the month of maximum mortality, was 3.62 as compared with 5.83 among the regular troops.

Volunteer relief work.—My guiding principle throughout the war has been that relief, when needed, should be promptly accepted without reference to the source from which it came. The relief afforded by the National Red Cross at Siboney was promptly accepted by the surgeons on the spot, but it is evident that it was entirely inadequate to meet the emergency. This association has had full authority to send agents and supplies to all of our camps since June 9, 1898, and it has contributed supplies of various kinds in a most liberal manner for the use of our field hospitals.

Other organizations which have rendered very valuable services are the National Relief Commission, having its headquarters in Philadelphia, and the Massachusetts Volunteer Aid Association, with headquarters in Boston. Both of these organizations fitted out hospital ships, which were placed at my service for the transportation of our sick from Porto Rico, and I take pleasure in testifying to the valuable services rendered by the yacht *May*, of the National Relief Commission, and the hospital ship *Bay State*, of the Massachusetts Volunteer Aid Association.

Special fund.—Sums of money varying from 33 cents sent by Master Oliver S. Whitaker, of Detroit, Mich., to \$5,000 by Mr. Cleveland H. Dodge, chairman of the supply committee National Red Cross Society, have been sent to me to be used

* Reports to the Adjutant-General to September 30, 1898, show 345 killed and died of wounds and 2,435 died of disease, in a mean strength of about 275,000 men.

according to my discretion for the benefit of our sick and wounded soldiers. In all I have received \$24,244.94. Among the contributors have been the Colonial Dames of America, through the treasurer, Miss E. B. Nicholas, of Washington, D. C., \$3,500; the Red Cross Auxiliary No. 3, through Mrs. Winthrop Cowdin, of New York, \$2,000; The Women's War Relief Association, through Mrs. Victoria Raymond, treasurer (contributed for hospital ship *Relief*), \$2,275.

This money has been sent by me principally to general hospitals, to chief surgeons of army corps in the field, and to commanding officers of hospital ships, for use in the purchase of delicacies for the sick.

The medical corps.—Before concluding my report of the operations of the medical department during our short and glorious war with Spain, I feel it my duty to call special attention to the efficient services rendered by the medical officers of the army in the various responsible positions which the exigencies of the service have made it necessary for them to fill. The inadequacy in the number of trained and experienced medical officers has been a source of great embarrassment to me in my efforts to meet the demands of the service; but as a rule our medical officers have performed the duties imposed upon them in a most loyal, intelligent, and zealous manner. They have shared with line officers the dangers of battle, and they have encountered with unflinching courage the more difficult and protracted combat with the infectious diseases which have invaded our camps and filled our hospitals. Many of them have suffered attacks of typhoid and malarial fevers, and at one time no less than 15 per cent of the corps was disabled by sickness.

Of those who accompanied General Shafter's army to Santiago few escaped serious sickness, and two of those who distinguished themselves for their devotion to duty lost their lives as a result of exposure to the malign influences which in so short a time sapped the vitality of the flower of the American Army. But credit is due not alone to those in the field. The labors of those on duty as chief surgeons of military departments, in charge of medical supply depots, and in other important positions, have been enormously increased, and it has required unremitting effort to meet the exigencies of the war.

RECOMMENDATIONS.

The increase of the enlisted strength of the Army to a total of 60,000, and the large number of new stations to be garrisoned in the islands acquired and occupied by the United States, makes an increase in the Medical Corps absolutely essential. I therefore recommend an addition to the number of medical officers now allowed by law, of 2 assistant surgeons-general with the rank of colonel, 6 deputy surgeons-general with the rank of lieutenant-colonel, 30 surgeons with the rank of major, and 50 assistant surgeons with the rank of first lieutenant.

This recommendation is based upon the present organization of the Army. Any increase made by Congress during the coming session will necessitate a further increase of the Medical Corps.

Very respectfully,

GEO. M. STERNBERG,
Surgeon-General, U. S. A.

The SECRETARY OF WAR,
Washington, D. C.

[Memorandum.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, November 26, 1898.

Medical officers, United States Army, with Fifth Army Corps at date of landing in Cuba.....	36	
Regimental medical officers	16	
United States Volunteers.....	1	
Civilian	1	
Contract surgeons	20	
		<hr/> 74
Joined after the assault, July 2, 1898:		
Medical officers, United States Army	1	
Regimental officers.....	8	
Contract surgeons.....	61	
		<hr/> 70
Total.....		<hr/> 144
Number of members of Hospital Corps on duty with Fifth Army Corps June 30, 1898, as reported by chief surgeon:		
Hospital stewards	18	
Acting hospital stewards.....	25	
Privates	207	
		<hr/> 250
Gain from July 1 to August 24, 1898, by transfer from Hospital Corps:		
Privates	47	
By detail as acting hospital stewards.....	38	
Immune soldiers sent to Santiago about August 11, 1898, as volunteer nurses	50	
		<hr/> 135
Total		<hr/> 385

Upon the declaration of war, surgeons were appointed on brigade, division, and corps staffs, as provided by law, but no provision was made in the law for large hospitals; consequently regimental surgeons were detailed to these hospitals and their regiments left with one surgeon only, and he a junior. This should not be. The breaking up of the regimental hospitals was, in my judgment, after the experience we passed through, a mistake; but it could not be avoided and maintain the division and general hospitals, which were indispensable. This branch of the service should be thoroughly equipped and ample provision made to supply the places of surgeons who fall sick or are otherwise unable to attend to their duties. One of the great mercies of the campaign were the female nurses. Until one has had experience or made careful observation he can not realize the work that these noble women did for our sick soldiers in hospitals; but they can not well be employed at regimental hospitals, especially in an active campaign.

The division and general hospitals are an absolute necessity. Where large numbers of sick are gathered together a supply of all delicacies

can be kept in abundance, and refrigerators, cooking outfits, and everything needed for the sick can be constantly kept on hand. The general or division hospitals should, however, in my opinion, be divided into wards assigned to separate regiments, and, as far as possible, to the companies of those regiments, thus keeping the men who serve in the same command as much together during their sickness as possible. It cheers them when their comrades are near at hand, and they are more confident and hopeful than when placed upon cots among strangers.

The Red Cross and other relief associations contributed in a very large degree to the care and comfort of our sick soldiers, and should receive the grateful thanks of the nation for the work they so nobly and unselfishly rendered.

On April 25, 1898, the following circular was issued by the Surgeon-General and distributed throughout the Army for observance in the field. Had it been strictly followed, less sickness would have resulted:

CIRCULAR }
No. 1. }

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,

Washington, April 25, 1898.

In time of war a great responsibility rests upon medical officers of the Army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that, as a rule, medical officers of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called upon for service in a tropical or semitropical country during the sickly season. In Cuba our armies will have to contend not only with malarial fevers and the usual camp diseases—typhoid fever, diarrhea, and dysentery—but they will be more or less exposed in localities where yellow fever is endemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers and of all others responsible for the health of our troops in the field is invited to the following recommendations:

When practicable, camps should be established on high and well-drained ground not previously occupied.

Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered with fresh earth or quicklime or ashes three times a day.

New sinks should be dug and old ones filled when contents of old ones are two feet from surface of ground.

Every man should be punished who fails to make use of the sinks.

All kitchen refuse should be promptly buried and perfect sanitary police maintained.

Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer.

Every case of fever should receive prompt attention. If albumen is found in the urine of a patient with fever, it should be considered suspicious (of yellow fever) and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent) or of chloride of lime (6 ounces to gallon of water), or with milk of lime, made from fresh quicklime.

Whenever a case of yellow fever occurs in camp, the troops should be promptly moved to a fresh camping ground located a mile or more from infected camp.

No doubt typhoid fever, camp diarrhea, and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served in the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way or by surface drainage.

If it can be avoided, marches should not be made in the hottest part of the day—from 10 a. m. to 5 p. m.

When called upon for duty at night or early in the morning, a cup of hot coffee should be taken.

It is unsafe to eat heartily or drink freely when greatly fatigued or overheated.

Ripe fruit may be eaten in moderation, but green or overripe fruit will give rise to bowel complaints. Food should be thoroughly cooked and free from fermentation or putrefactive changes.

In decidedly malarious localities from 3 to 5 grains of quinine may be taken in the early morning as a prophylactic; but the taking of quinine as a routine practice should only be recommended under exceptional circumstances.

Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dews, the first opportunity should be taken to dry it in the sun or by fires.

GEO. M. STERNBERG,
Surgeon-General, U. S. A.

PAY DEPARTMENT.

WAR DEPARTMENT, PAYMASTER-GENERAL'S OFFICE,
Washington, October 21, 1898.

SIR: I have the honor to submit the following summary of my annual report for the fiscal year ending June 30, 1898:

RECEIPTS AND EXPENDITURES.

A general statement of all amounts received and expended during the year ending June 30, 1898. Total received and accounted for, \$23,499,969.47.

The expenditures of the present fiscal year exceeded those of the preceding year by \$2,326,804.11. The increase is accounted for by the fact that by act of March 8, 1898, two additional regiments were added to the strength of the Regular Army, and again under act of April 22, 1898, the Regular Army was increased to its maximum strength—61,000. Under the same act about 220,000 volunteers were called into the service, making an aggregate army of regulars and volunteers of about 280,000 enlisted men. Estimates were prepared and submitted to Congress, and liberal appropriations were made to meet the payment of this extraordinary force.

COLLECTIONS.

Statement of collections in favor of other bureaus of the War Department aggregate \$169,624.18.

SOLDIERS' DEPOSITS.

A recapitulation by years of soldiers' deposits show a steady increase in the number and aggregate amount of deposits.

The increase in deposits is an evidence of a growing interest on the part of the enlisted men of the Army in the provisions of the Government to assist the soldier to save his earnings. The deposit system applies to both regular and volunteer soldiers.

MILEAGE PAYMENTS.

An analytical statement of mileage disbursed during the year.

The question of mileage has been quite satisfactorily and equitably settled by the allowance of 7 cents per mile. I have two recommendations to make, however, in regard to this matter of mileage which will expedite the settlement of accounts.

First. That a uniform rate of 3 cents per mile be deducted for travel over all bond-aided and land-grant railroads.

Second. That the table of distances prepared by the War Department, under the direction of the Secretary of War, be adopted as the authority for the settling of the mileage accounts, both in this Department and in the Treasury Department, and be so recognized by law.

SYSTEM OF PAYMENT.

During the past year all payments to the Army have been made monthly. While a portion of the Army has been paid by check or currency by express, all of the forces in active service have been paid by the paymaster in person. The payments in many cases have been quite complicated, owing to the fact that authority was given to muster the several State organizations into the service in accordance with the State laws. In many instances the State organizations differed from the organization of the United States Army, both in number and rank of officers and enlisted men. This gave rise to many questions of rank and pay, which required settlement, and the Department was continually appealed to for instructions and directions in settling these questions. The payments, however, have been met with promptness and regularity.

Since the close of the fiscal year covered by this report, and up to the date of its rendition, October 25, this Department has endeavored to pay monthly the troops

in the field, scattered over two hemispheres, and has fairly well accomplished the task.

In addition to the regular payments, the payment of mustered-out troops has imposed much additional labor, but so far all have been paid without delay.

The large number of regiments and independent commands yet to be mustered out will severely tax the energies of the entire Pay Corps, but the zeal they have shown gives assurance that, however arduous the labor, it will be promptly and satisfactorily performed.

ADDITIONAL PAYMASTERS.

The increase in the Army necessitated an increase in the force of the Pay Corps to enable the Department to make prompt payments; therefore, on request of the Paymaster-General, the President had, on June 30, 1898, increased the corps by 72 additional paymasters.

These officers and their clerks entered the service with very little or no knowledge or experience in regard to army accounts, and it appeared necessary to place them under instruction to fit them for their duties. Accordingly a school of instruction was organized in which each was made familiar with the necessary forms to be used in payments and the principles of making and rendering accounts. As a result each officer entered upon his duties with a fair knowledge of the business before him.

This preparation has borne its result, as the payments to troops have been made promptly and intelligently, resulting in fewer errors than would have otherwise occurred.

EXAMINATION OF ACCOUNTS.

By section 12, act of July 31, 1894, it is required that accounts in this office shall be transmitted to the Auditor for the War Department within twenty days after receipt. With the increased amount of work it is very difficult to comply with the above requirements and do justice to the accounts, and I therefore ask that legislation may be had giving the Secretary of the Treasury the same authority in regard to relaxing the rules and regulations in regard to the rendition of accounts by the administrative departments beyond the limit of twenty or sixty days as in the case of rendition of accounts by the accounting officers.

INCREASE IN THE REGULAR FORCE OF THE PAY CORPS.

While the strength of the Regular Army has been more than doubled numerically, the number of regular paymasters has remained the same. The duties of regular paymasters, when assigned as senior officers in charge of additional paymasters, in making payments have been both responsible and difficult, as they were not only required to make their own payments, but also direct and assist the new officers in their duties. Several of the majors have been assigned to new stations at very remote points, as at Manila, Porto Rico, and Cuba, with large sums of money in their charge for distribution to the paymasters accompanying them. Being so far distant, they have been called upon to decide many important and difficult questions, in the matter of payments, requiring thorough knowledge and experience in their line of work. Very capable officers have been found for these responsible positions,

and while other staff officers, with the rank of colonel and lieutenant-colonel, are filling similar positions in their several departments, the paymasters, with quite as great responsibilities, are only ranked as majors.

In view of the foregoing facts—the increased Army and added responsibilities—I earnestly recommend that to the present Pay Corps of the Army there may be added 3 assistant paymasters-general, 5 deputy paymasters-general, and 20 majors and paymasters. The promotions to colonel and lieutenant-colonel to be made from the officers now in the Pay Department, according to seniority, and upon the mustering out of the volunteer forces and the reduction of the Regular Army to the basis prior to the act of April 26, 1898, no appointments to be made in the Pay Department until the number of officers in each grade shall be reduced to the number authorized prior to the date of the act above mentioned.

PERSONNEL.

April 30, 1898, Maj. William Arthur retired from active service, under section 1243, Revised Statutes.

May 2, 1898, Harry L. Rogers was appointed major and paymaster to fill vacancy.

June 10, 1898, Col. G. W. Candee, assistant paymaster-general, died at Chicago, Ill.

June 10, 1898, Lient. Col. A. B. Carey was promoted to colonel and assistant paymaster-general to fill vacancy.

June 10, 1898, Maj. C. I. Wilson was promoted to lieutenant-colonel and deputy paymaster-general to fill vacancy.

June 15, 1898, J. A. Watrous was appointed major and paymaster to fill vacancy.

PAYMASTERS' CLERKS.

There is no class of employees in the service of the Government who are so poorly paid in proportion to their services as the paymaster's clerk. The work requires men of first-class abilities and they have expenses to bear in change of station, etc., corresponding with that of an officer. I, therefore, again recommend an increase in their compensation.

CLERICAL FORCE.

The regular clerical force in the Paymaster-General's Office has shown the result of thorough training and experience in official duties. Their work has been very heavy and required many extra hours service daily. This they have accomplished willingly, at the same time instructing the new appointees and additional paymasters in their several duties.

I would earnestly recommend that Congress be requested to make appropriation for payment to the clerks who have rendered extra service during the period of the war.

Very respectfully,

T. H. STANTON,
Paymaster-General, U. S. A.

The SECRETARY OF WAR.

From the report of the Paymaster-General it appears that all payments to the Army have been made with promptness and regularity, as well as the payment of troops mustered out of service.

He recommends that in the payment of mileage to officers a uniform rate of 3 cents per mile be deducted for travel over all bond-aided and land-grant railroads; and that the table of distances prepared by the Department be recognized by law as authority for the settling of mileage accounts. These recommendations are concurred in, as also his recommendation for an increase of the Pay Corps of the Army, and the compensation of paymasters' clerks.

ENGINEER DEPARTMENT.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, September 29, 1898.

SIR: In compliance with your instructions I have the honor to present the following synopsis of my annual report for the fiscal year ending June 30, 1898:

OFFICERS OF THE CORPS OF ENGINEERS.

At the close of the fiscal year the Corps of Engineers consisted of 123 officers, 35 of whom were detached from the command of the Chief of Engineers and on duty with the armies in the field, at the United States Military Academy, with the Light-House Establishment, and with the Commissioners of the District of Columbia.

The other officers of the corps were busily engaged during the year in charge of important public works connected with permanent fortifications, submarine defenses, improvement of rivers and harbors, construction of canals, construction and repair of light-houses, public buildings and grounds in the District of Columbia, Washington Aqueduct, as members of Board of Engineers, the Mississippi River Commission, the Missouri River Commission, the Deep Waterways Commission, the California Débris Commission, and on duty with the Battalion of Engineers and the United States Engineer School at Willets Point, N. Y.

The calls for engineer officers for duty with the armies in the field could be met only in part, owing to the necessity of constructing the numerous works of fortifications, the planting and maintenance of submarine mines for defense, and the continuance of the elaborate works of river and harbor improvement.

This fact was brought to the attention of Congress, and by the act approved July 5, 1898, the Corps of Engineers was increased from 109 to 127 officers.

BATTALION OF ENGINEERS.

The maximum authorized enlisted strength of the Battalion of Engineers is 5 companies of 150 men each. During the war with Spain Company A has been serving with troops at the Philippine Islands; Companies C and E have been serving with the army operating in Cuba; Company D, with details from other companies (in all, 153 men), has been detached for submarine mining duty at 19 harbors on the Atlantic, Gulf, and Pacific coasts, and Company B has been busily engaged at the engineer depot at Willets Point, receiving, storing, and distributing the vast amount of torpedo materials, instruments, ponton equipage, and siege materials purchased and

distributed from the depot, and in preparing and maintaining the submarine-mine defenses at the eastern entrance to New York Harbor.

SEACOAST DEFENSES.

During the fiscal year projects for permanent seacoast defenses were prepared, and approved by the Secretary of War, for Port Royal, S. C., St. Johns River, Florida, Tampa, Fla., and Sabine Pass, Tex., making thirty localities in the United States for which permanent defenses have thus far been approved under the general scheme recommended in 1886 by the Board on Fortifications, generally known as the Endicott Board.

At the close of the fiscal year the construction of permanent modern defensive works was in progress at twenty-five localities.

In consequence of the war with Spain and the possibility of hostile attacks upon our coasts, urgent and pressing demands were made by Senators, Representatives, and local business interests for the immediate erection of seacoast batteries at numerous points not contemplated in the general scheme of national defense. When it is considered that the aggregate length of the coast of the United States, exclusive of Alaska, is about 5,715 miles, and that more than 700 towns and villages on this extensive line can be attacked by ships drawing 10 feet or more of water, the practical impossibility of immediately and adequately defending every vulnerable point becomes readily apparent.

Temporary batteries were ordered at Bar Harbor, Me., Stonington, Bridgeport, and New Haven, Conn., Port Royal and Georgetown, S. C., Brunswick and Darien, Ga., mouth of St. Johns River, St. Augustine, Miami, and Tampa, Fla., and Sabine Pass, Tex.

The armaments were overhauled and additional guns mounted at Fort Knox, Fort Popham, Fort Trumbull, Fort Monroe, Fort Macon, Fort Pulaski, Fort Clinch, Fort Morgan, Fort Jackson, and the forts in San Francisco Bay.

While no hostile attacks were made upon our coasts during the war with Spain, the operations of the American fleet on the coasts of Cuba and Porto Rico have amply demonstrated the value of coast defenses, including shore batteries and submarine mines, in resisting naval attacks.

It may be confidently asserted that the completion of the projects upon which operations are now in progress will practically insure the safety of our principal harbors and seacoast cities against any attacks from sea. One other important deduction may also be drawn from the results of the war, namely, the great value and efficacy of the rapid-fire gun.

GUN AND MORTAR BATTERIES.

Existing projects for seacoast defenses contemplate the emplacement of about 500 heavy guns of 8, 10, 12, and 16 inches caliber, of about 700 rapid-fire guns of various calibers, and of about 1,000 mortars. The estimated approximate cost of the engineering work connected with the installation of this armament is \$55,000,000.

Since the inauguration of the modern system of coast defense, Congress has made appropriations for the construction of permanent gun and mortar batteries as follows:

Act of—		Act of—	
August 18, 1890.....	\$1, 221, 000	Allotted by the President	
February 24, 1891.....	750, 000	from act of March 9,	
July 23, 1892.....	500, 000	1898.....	*\$3, 797, 000
February 18, 1893.....	50, 000	May 7, 1898.....	3, 000, 000
August 1, 1894.....	500, 000	July 7, 1898.....	2, 562, 000
March 2, 1895.....	500, 000		
June 6, 1896.....	2, 400, 000	Total	19, 121, 333
March 3, 1897.....	3, 841, 333		

With the funds indicated in the foregoing table, provision has been made for mounting 288 heavy seacoast guns, 254 rapid-fire guns, and 312 mortars, or about 57 per cent of the total projected armament of heavy guns, 36 per cent of the rapid-fire guns, and 31 per cent of the mortars.

This armament has been placed at 71 localities in 29 harbors of the United States.

The total number of emplacements provided for, and either completed or under construction at the beginning of the fiscal year, was as follows:

12-inch	24
10-inch	82
8-inch	33
Rapid-fire	16
12-inch mortars.....	232

The total number of emplacements completed or under construction at the close of the fiscal year was as follows:

12-inch	74
10-inch	102
8-inch	80
Rapid-fire	62
12-inch mortars.....	312

When the diplomatic relations with Spain began to assume a threatening character, orders were given to push work with all possible energy and to mount every available gun as fast as delivered. Operations were carried on with double, and in some cases three shifts of workmen, and were pushed regardless of weather and climate; the extraordinary efforts made have resulted in most gratifying progress, especially in the number of guns available for service; there were mounted during the year six 12-inch guns, fifty-two 10-inch guns, thirty 8-inch guns, twenty-six rapid-fire guns, and seventy-one 12-inch mortars.

* Includes twenty-one 8-inch breech-loading rifles temporarily mounted on modified 15-inch smoothbore carriages.

The status of works at the close of the year was as follows:

	12-inch.	10-inch.	8-inch.	Rapid-fire.	12-inch mortars.
Guns mounted	16	70	35	26	144
Platforms ready for armament	27	28	7	16	64
Under construction	31	4	38	20	104
Total.....	74	102	80	62	312

The care and service of this modern armament has largely increased the responsibilities devolving upon the artillery arm of the service and has developed a defect in its organization which calls for prompt remedy through Congressional legislation.

The new batteries either have been or will shortly be equipped with electric-light and power plants for lighting magazines and passageways, and for operating ammunition lifts; a still further extension of the application of electrical power is sought by the artillery arm, and may be realized in the near future. The plants installed for the purpose by the Engineer Department, while as simple as circumstances will permit, demand for their proper care, preservation, and operation a greater degree of mechanical and electrical intelligence than can ordinarily be supplied by the enlisted men of the artillery. It is very desirable that all operations connected with the service of modern batteries be conducted by men regularly enlisted and amenable to military discipline, and it is earnestly recommended that legislation be obtained providing for the enlistment in each battery of artillery of two or more machinist electricians, with the rank of sergeant, and at a rate of pay which will secure a class of men capable of properly caring for and operating the electric-light and power plants of modern batteries.

As new batteries are being completed and transferred to the artillery, questions of tactics and organization are arising which require careful consideration in order that the highest efficiency may be realized from the new system of defenses. These defenses for any locality comprise not only gun and mortar batteries, but submarine mines, search lights, and position-finding instruments, each separate element demanding a high degree of technical skill and involving the functions of the artillery arm and of the Engineers, the Ordnance, and Signal departments. The complexity and variety of the elements of a perfected modern scheme of seacoast defense demand a single head at each locality, who shall be responsible for the conduct of the defense and to whom all others shall be subordinate.

In this connection attention is invited to the views of Brig. Gen. George L. Gillespie, U. S. Volunteers, colonel, Corps of Engineers, upon the duties of a fortress commander as applied to the defenses of New York Harbor, printed as Appendix 3 of my report.

SUBMARINE MINES.

During the past two years the question of the revision of the torpedo system has been under consideration by a special board of engineer officers. A number of improvements in the details of the materials and in the operation of the system were recommended after their superiority had been demonstrated by practical trials at the United States Engineer School at Willets Point. The labors of the board

had been practically completed at the outbreak of the war; but, unfortunately, neither time nor funds were available for immediately replacing the old-style apparatus with the new and improved, and it became necessary to use the former to a large extent in mining the various harbors of the country for defense.

At the outbreak of hostilities there were on hand a considerable number of mine cases and a limited quantity of operating apparatus, but no cable, explosives, search lights, or any of the multitude of minor articles needed to plant and operate the mines. Steps were at once taken to procure as rapidly as possible all needed material for placing in position at every important harbor a preliminary line of mines.

The total allotments from the appropriation for national defense, made for the torpedo defenses of the country, aggregated \$1,540,000; in addition, the deficiency act of May 4, 1898, appropriated \$50,000 for purchase of material and \$300,000 for planting and maintaining mine fields.

Only the more important items of torpedo material purchased can be given here. They comprise about 400 miles of single and multiple cable, 150 tons of explosives, 1,650 new torpedo cases, 44 electric search lights, 1,500 compound plugs for mines, 4,500 circuit closers and regulators, and 17 sets of casemate operating apparatus.

At the close of the fiscal year over 1,500 submarine mines had been planted in 28 different harbors, with all their cables, anchors, junction boxes, and the necessary operating apparatus installed.

For the preservation and maintenance of the mine fields it was necessary to enforce special rules, approved by the Secretary of War, for the navigation of friendly vessels, involving the employment of a large number of tugs and boats, with a numerous personnel, at an approximate daily cost of about \$3,000.

To enable further alterations and improvements to be made in existing mining casemates, and for the construction of additional casemates, cable tanks, and storehouses at a number of localities, an appropriation of \$100,000 is requested.

SITES FOR FORTIFICATIONS.

During the past fiscal year title has been obtained to sites required for seacoast defenses at Boston, Mass.; eastern entrance to Long Island Sound; southern entrance to New York Harbor; Port Royal, S. C.; Key West, Fla.; Galveston, Tex., and Puget Sound, Washington. Negotiations are still in progress for the acquisition of sites at Boston, Mass.; Narragansett Bay, Rhode Island, and Puget Sound, Washington. Since the close of the fiscal year the land required on Fishers Island, at the eastern entrance to Long Island Sound, has been obtained.

The acquisition of land for seacoast defenses is in nearly every case attended by annoying delays, particularly where the aid of courts must be invoked through the medium of condemnation proceedings. A number of important sites must still be acquired, and, as all funds hitherto appropriated have been expended or pledged, an appropriation of \$300,000 is requested to continue acquisition of sites.

ESTIMATES.

The estimates for engineering work of seacoast defenses, submarine mines, and sites for fortifications for the fiscal year ending June 30, 1900, is as follows:

For gun and mortar batteries.....	\$4,300,000
For parapets and magazines for pneumatic dynamite guns	110,000
For torpedoes for harbor defense.....	100,000
For sites for fortifications	300,000
For preservation and repair of fortifications.....	100,000
For plans for fortifications	5,000
For sea walls and embankments.....	2,500
Total	4,917,500

THE UNITED STATES ENGINEER SCHOOL AND ENGINEER DEPOT AT WILLETS
POINT, N. Y.

The object of the Engineer School at Willets Point, N. Y., is to provide a post-graduate course in engineering for the young officers of the Corps of Engineers, and to give them practical instruction in their duties with engineer troops, in submarine mining, and in higher civil and military engineering, in order to better fit them for the important and responsible work which devolves on the Corps of Engineers. The advantages offered by the school in training young engineer officers for their future duties and in imparting a knowledge of the submarine-mine system were fully demonstrated during the recent war with Spain.

The garrison consisted of three companies of engineer troops until the declaration of war, when the operations of the school were suspended and nearly all the officers assigned to duty in the field.

The object of the Engineer Depot is to continue torpedo experiments, both for offensive and defensive purposes; to purchase, test, receive, store, and distribute submarine mining material, ponton equipage, intrenching tools, instruments, etc.

Attention is invited to the estimate of \$10,000, presented in detail in my report of September 29, 1898, for the Engineer Depot and School at Willets Point, N. Y.

RIVERS AND HARBORS.

The condition of the various works for the improvement of rivers and harbors carried on under appropriations made by Congress is given in detail in my report for the past fiscal year. No additional appropriations were made by Congress at its last session for the general improvement of rivers and harbors, except in the case of works carried on under continuous contract, and the only funds available have been balances remaining available from appropriations of June 3, 1896. Work has therefore been suspended at many points during the past year.

The total amount actually expended for the improvement of rivers and harbors during the fiscal year ending June 30, 1898, is as follows:

For general improvement of rivers and harbors.....	\$13,395,428.84
For removal of wrecks	51,334.19
For operating dredge boats and snag boats	66,432.36
For operating canals and other works of navigation.....	671,368.04

For work under Mississippi River Commission.....	\$2, 536, 786. 09
For work under Missouri River Commission, including improvement of Gasconade and Osage rivers, Missouri	424, 741. 60
For gauging waters of the Lower Mississippi River and its principal tributaries.....	5, 998. 39
For examinations and surveys of South Pass, Mississippi River	* 9, 709. 57
Total	17, 161, 799. 08

Since the last report was submitted appropriations for rivers and harbors have been made by joint resolution approved April 11, 1898, providing \$2,000, the sundry civil act, approved July 1, 1898, providing \$14,492,459.56, and the deficiency act, approved July 7, 1898, providing \$360,001.02.

The total estimate submitted for the fiscal year ending June 30, 1900, for continuous work authorized by Congress and by the Secretary of War, is \$12,883,437. The items making up this amount are such as Congress has authorized to be expended during the year ending June 30, 1900, at the various localities for which continuing work is authorized, and Congress has virtually pledged itself to provide the amounts for which requisition is made.

In addition to the estimate submitted for work under continuing contracts, an estimate is presented for the construction and maintenance of works which have been authorized by Congress, but not provided for by such continuing contracts, amounting to \$15,580,341. The items making up this amount are the amounts which can be profitably expended in carrying on during the fiscal year ending June 30, 1900, the projects adopted by Congress. The estimates are submitted in accordance with the requirements of the sundry civil act of June 4, 1897, which provide " " " And hereafter the Secretary of War shall annually submit estimates in detail for river and harbor improvements required for the ensuing fiscal year to the Secretary of the Treasury to be included in, and carried into the sum total of, the Book of Estimates."

The act of June 3, 1896, authorized the Secretary of War to enter into contract for the completion of a number of works, and contracts have already been made, or the required preliminary steps to that end have been taken in all cases.

The work of the Mississippi River Commission during the past year has been in accord with the plan adopted by the Commission January 11, 1896, which provided for the dredging of channels and the construction and maintenance, in cooperation with the State and local authorities, of an effective levee system. The Commission has now provided 7 dredges for service at shoal places during low water.

The Missouri River Commission again calls attention to the fact that the progress of work for the systematic improvement of the river by continuous work by reaches is seriously interfered with by requirements of law which specify numerous localities, separated by many miles, where work is required to be done, and directing that the money to do such work be taken from the appropriation made for systematic improvement of the river. Work at special localities, if directed by Congress, should be provided for by separate appropriations.

* This amount is exclusive of the sum paid the executors of the estate of James B. Eads for "maintaining jetties and other works at South Pass, Mississippi River."

The results obtained on this river have shown beyond question the practicability of controlling the river, holding its banks, and giving ample channels for navigation; but the cost and uncertainty of permanence of the work and the slow progress heretofore made have been such as to discourage those interested in the effort to improve the river for such a distance as would give promise of building up its commerce to a degree commensurate with the cost of the work.

The commerce passing through the St. Marys Falls Canal during the navigable season of 1897 comprised 18,982,755 tons of freight, an increase of nearly two and three-quarter millions, or about 17 per cent, over that for 1896, and valued at \$218,235,927.77; and that through the Detroit River is estimated to be something over 30,000,000 tons.

The commerce of the Great Lakes has increased so enormously that accurate charts can only be procured by constant examinations and surveys of new shoals as they become known, and corresponding corrections of and additions to the engraved plates; therefore the appropriations asked for these purposes are recommended.

The item of appropriation for completing the 20-foot connecting channel on the Great Lakes, in sundry civil act of June 4, 1897, provided for certain observations and investigations in connection with the preservation of such channel depth. A limited allotment from this appropriation, together with the allotments from Lake Survey appropriations, is being used for the inauguration of the observations and investigations necessary for determining the variation of lake levels and the extent to which they may be regulated, and in what way the navigable channels may be best preserved. The Deep Waterways Commission is cooperating in the work so far as their means permit. This work is of very great importance to the immense commerce of the lakes and should be continued through several years. It is estimated that the cost of the work which it is desirable to have carried out during three years is \$250,000, and an appropriation of \$100,000 for continuing the work during the year 1900 is urgently recommended.

WASHINGTON WATER SUPPLY.

The District appropriation act for the year 1899 provides for an investigation as to the feasibility and propriety of filtering the water supply of Washington. This work is now under way, and a full report thereon will be submitted to Congress.

The same act provided for resumption of work on the Washington Aqueduct tunnel and the Howard University reservoir. The necessity for an additional conduit between Great Falls and the distributing reservoir has become most apparent, and I strongly recommend that provision be made for this work in the near future.

ARLINGTON MEMORIAL BRIDGE.

The sundry civil act of June 4, 1897, made provision for surveys, etc., for a memorial bridge from the old Naval Observatory grounds in this city to Arlington National Cemetery. A report upon this subject was submitted in March, 1898, and is printed as House Doc. No. 388, Fifty-fifth Congress, second session.

DEEP WATERWAYS BOARD.

The sundry civil act of June 4, 1897, also provided for the appointment of a board to make such surveys and examinations of deep waterways between the Great Lakes

and the Atlantic tide waters as were recommended in the report of the Deep Waterways Commission transmitted to Congress January 18, 1897. The board, consisting of Lieut. Col. Charles W. Raymond, Corps of Engineers, and Messrs. Alfred Noble and George Y. Wisner, civil engineers, is now engaged in the duties assigned under the provisions of the act.

SOUTHWEST PASS BOARD.

The board of engineer officers appointed under the provisions of joint resolution No. 9, approved February 17, 1898, for the purpose of making a survey and report upon the practicability of securing a navigable channel of adequate width and of 35-foot depth at mean low water of the Gulf of Mexico throughout the Southwest Pass of the Mississippi River, is now engaged in the performance of the duty imposed, and it is expected that their report on this subject will be completed in time to permit of its submission to Congress before the close of its next session.

PUBLIC BUILDINGS AND GROUNDS IN WASHINGTON, D. C.

The improvement of public buildings and grounds and maintenance of the Washington Monument have been carried on under appropriations made by Congress, and, as far as funds permitted, the work has progressed in such manner as to secure the best results. The estimates for this purpose for the coming fiscal year are given in detail in my annual report, and amount to \$184,846.

MILITARY MAPS.

Special attention is invited to the item relative to the compilation and publication of military maps for use of the War Department, and particularly those required in connection with harbors adjacent to new fortifications. An appropriation of the small amount asked for is strongly recommended.

Very respectfully, your obedient servant,

JOHN M. WILSON,

Brig. Gen., Chief of Engineers, U. S. Army.

Hon. R. A. ALGER, *Secretary of War.*

Attention is invited to the details given in the report of the Chief of Engineers, which show the progress made in the erection of permanent and temporary batteries for seacoast defense, and the great amount of work accomplished. The mines planted in the harbors have been removed and most of them safely stored for preservation.

There should be in the service a force of practical engineers skilled in the manufacture and setting up of all electrical appliances and machinery; and attention is invited to the recommendation of the Chief of Engineers on this subject. It is important that the legislation recommended be enacted at the present session of Congress, in order that the valuable electric-light and power plants at fortifications may not deteriorate.

In all cases of new works for river and harbor improvements it is recommended that a board of skilled engineers examine the proposed

work, reporting upon the cost and also upon the need for such improvements before appropriations for such works are made.

A large number of engineers should be educated at West Point for assignment to that branch of the service. The Government is spending many millions of dollars upon great works of harbor and other improvements, and a single officer is given a number of public works to look after, taking much of his time traveling from one to another. A young officer should, in my judgment, be placed permanently with each work and supervise it constantly, reporting to his chief.

The several recommendations of the Chief of Engineers are the result of mature judgment and careful consideration, and the favorable action of Congress thereon is recommended.

MEMORIAL BRIDGE.

Attention is invited to the report submitted to Congress in March last upon the proposed memorial bridge across the Potomac River from the old Naval Observatory grounds to the Arlington Reservation. The recommendations heretofore made for the construction of this bridge are renewed.

DEEP WATERWAYS COMMISSION.

The Deep Waterways Commission has not yet filed its report, but is steadily at work and will be enabled to report in time for the next session of Congress.

Especial attention is called to the remarkable increase of the commerce of the Great Lakes as shown in the report of the Chief of Engineers, much of which is due to the deep waterways channel through the connecting waters of the lakes, which has been completed.

ORDNANCE DEPARTMENT.

OFFICE OF THE CHIEF OF ORDNANCE,
UNITED STATES ARMY,
Washington, October 19, 1898.

SIR: In compliance with your instructions of 18th instant, I have the honor to submit herewith a synopsis of the report of the operations of the Ordnance Department for the fiscal year beginning July 1, 1897, and ending June 30, 1898.

When the first call for volunteers from the States for the war with Spain was made, it was decided to take as many of the regiments of the National Guard as possible, already armed and equipped by the States. Steps were taken to get correct records and lists of the stores furnished, with a view to submitting the same to Congress at its next session for such action as might be deemed advisable for restoring to the States material furnished by them. When the muster out of the volun-

teer troops commenced, it was necessary in some cases, on account of the needs of the National Guard, to return a portion of the arms and equipments turned over. This was authorized and the stores turned over to the States are charged against their credit for the present.

The question as to the advantage of having States furnish arms and equipments to troops mustered into the United States service requires careful consideration. The supposition was that by following this method, the State troops, being already armed and equipped, would be ready for immediate service. This was based on the supposition that the arms and equipments were in good condition, an expectation not generally realized during the war. It is probable that the troops would have been ready for service as quickly by being equipped anew. Some organizations would not have been ready for service quite as soon; others would probably have been ready earlier, and the difficulty of making settlements satisfactory to the States and the United States with reference to ordnance property turned over would have been avoided. Also, it would have been known that all material furnished was in good order, and the confusion that resulted from having regiments in the service with arms and equipments which had to be almost immediately condemned and afterwards replaced would have been avoided.

The work at the arsenals and other ordnance establishments and the work under contract was enormously increased during a portion of the year, in consequence of the war with Spain. The greatest and most important part of the work in the origin was increasing rapidly the coast defense. Later, after the first call for troops, the duty was imposed upon the Department of arming and equipping, almost immediately, a large army of infantry, cavalry, and artillery. So long as the principal dependence in this country in time of war is on a force newly levied, it will hardly be practicable to keep on hand large supplies of equipments which in a few years will deteriorate and have to be materially modified to keep pace with improvements. The major portion of such material can, by taking advantage of the resources of Rock Island and other arsenals and numerous private establishments capable of producing it, be supplied as rapidly as troops can be mustered into service and prepared for campaign. There should, however, be on hand field and siege artillery, with carriages and a portion of the harness for 500,000 men, as such guns and carriages can not be turned out in large numbers until after about six months' preparation; but if sufficient of this material were on hand for an army of 500,000 men, the resources of the Department and the country would provide additional field and siege material rapidly enough to supply the troops as raised.

A supply of ammunition for field and siege guns sufficient for three months should at all times be kept on hand, as by the expiration of that period the plant now established at Frankford Arsenal and the one which should be installed at Rock Island would then be capable of meeting all requirements.

The question of the supply of small arms presents difficulties. Changes and improvements in such arms make it impracticable to keep even large standing armies armed with the very latest and best arms. A nation that does not keep a standing army is less likely to undergo the great cost of changing arms in store to be ready to furnish the latest patterns immediately. When the model of a rifle is changed, however, it is thought that a supply of at least 100,000 should be procured

by purchase and manufacture at the earliest moment that the resources of the arsenals and country can produce them, and machinery should be installed at Springfield and Rock Island for the production of about 2,500 stand per day. After a sufficient reserve is established, some 35,000 per year should be manufactured, as experience has shown that this number will add to the supply required as rapidly as is desirable, provided always that machinery has been installed for rapid increase of output.

The machines principally used in the manufacture of small arms are of commercial pattern, while the special cutters and other tools actuated by the machines alone, as a rule, change with the pattern of the gun. Although many arms might, if sufficient warning were given, be purchased abroad, the very best would not likely be on hand and could not be purchased in time even if they could be delivered in this country, which a state of war might render difficult. Therefore the policy of relying upon our own resources is best. In this way the arms produced would always be of the latest and best patterns. With a sufficient supply on hand for immediate issue and the installation of a large enough plant at the armories, they could be produced as rapidly as the armies could be raised and disciplined. When changes of pattern are necessary, we can hardly expect that Congress will provide for changing at once the reserve arms kept on hand, and it must always be anticipated that patterns not the very latest may have to be issued temporarily until others can be manufactured.

It is not possible to provide quickly for coast defense. Estimates should be submitted each year for so much work as the facilities of production will permit. This is the plan which has been adopted and consistently worked on for some years for providing and completing coast defense, and which could soon be finished; but the work can not progress faster than the appropriations. Large reductions from time to time have been made in the estimates of this Department, and where such reductions have occurred effort has been made to leave those which relate to material that is procured with difficulty as great as possible. Following this course, the Department had on hand at the outbreak of the war, for coast defense, more guns than carriages, because the carriages could be procured at several establishments, the guns at only two. There were more guns and carriages on hand than projectiles or powder, because these can be procured more rapidly than the guns and carriages. A well-balanced system, however, with estimates filled for all the material necessary to install the guns and carriages and provide them with a sufficient number or rounds of ammunition and with all their equipments, should be made at one time.

It was necessary to arm a large portion of the army with the caliber .45 rifle, owing to the fact that it was the only gun available in large quantities for the purpose, and that a large portion of the troops called into service were already armed with it and familiar with its use. It is not claimed by the Ordnance Department that the caliber .45 single-loader is equal to the United States magazine rifle, caliber .30, which replaced it, but it is claimed that it is by no means as inferior as has been asserted. Its simplicity and security from getting out of order under the roughest usage made it valuable to new troops. Its rate of fire is sufficient for all cases where aimed fire is to be delivered. Its extreme range—2 miles—does not differ materially from that of the caliber .30 rifle, the range for the one being 3,500 yards,

for the other a little over 4,000 yards. These latter ranges are far beyond the vision of a man for aimed firing at men, and would probably never be used. The effect of the bullet of the caliber .45 rifle is much more serious than that of the caliber .30.

The especial advantage of the magazine rifle is its reserve of five cartridges in the magazine, the very important advantage of its flatter trajectory, and the lighter weight of its ammunition, which enables the soldier to carry more cartridges. The most serious defect of the Springfield rifle during the war was the fact that at the origin nothing but charcoal powder could be furnished for it. As rapidly as possible this defect was overcome, and the manufacture of smokeless ammunition for the caliber .45 rifle was carried on extensively. The large reserve of Springfield rifles on hand will be supplied with smokeless-powder cartridges should their use become necessary in the future, a use which is not now anticipated. The arms, however, are being cleaned and repaired and made fit for service as rapidly as turned in.

Reports of officers who were in the Santiago campaign, as received by a special board which proceeded to Montauk Point to investigate the subject, confirm the excellence of the magazine rifle, caliber .30, in all respects. Notwithstanding rough usage, unusual exposure in a bad climate, which prevented the exercise of the usual care in preserving the arm, the breech mechanism is reported to have worked smoothly and well.

Investigations at different times during the last few years had led to the conclusion that there was in this country capacity for the manufacture of nearly all, if not all, the small-arm cartridges needed to meet the demands of any emergency. This expectation was realized and a greater amount of this ammunition was furnished than was needed—more than would have been needed had the war been protracted.

For many years the annual appropriations for infantry, cavalry, artillery, and horse equipments have been barely sufficient, with the utmost economy, to meet the annual consumption of the Regular Army. There was, therefore, only a small supply of them on hand at the commencement of the war. It has not been the plan of the Department to keep a very large supply of these equipments on hand, as they are subject to rapid deterioration. Instead of this it has been the plan of the Department to be prepared to manufacture a supply of the equipments as fast as armies could be raised, a portion of Rock Island Arsenal having been constructed for this purpose.

Although the buildings were available, the plant had not been installed, because of failure to procure appropriations therefor. Notwithstanding the delays encountered in getting ready for this manufacture, the Department made provision for meeting the call for equipments for the first call for troops as fast as they had been anticipated. As these troops were mainly from the National Guards of the different States, it was understood that they were well equipped, and the plans made for providing equipments were based on this supposition, which, however, was not realized. Various causes combined to increase the difficulties of meeting the demands for these equipments. Without any of these causes it is believed the Department could have been, in a month or six weeks, ahead of all requirements. The difficulties referred to above would indicate that the plan made of providing equipments for large armies raised suddenly in this country is feasible, and that in general they can be supplied as fast as troops can be raised, organized, drilled, and prepared to receive them.

One of the greatest difficulties encountered was to meet the large demands for cartridge belts. The impossibility of meeting the sudden and great demand for these belts at one time caused the purchase of a limited number of inferior pattern for temporary use until others could be procured. On August 15, 1898, the output of belts of satisfactory pattern was 7,500 per day. From April 21 to August 31 the Department procured about 250,000 sets of infantry equipments, and about 26,000 sets of horse equipments.

At the outbreak of the war, as stated, the most urgent demand was for arrangements for coast defense. But little could be done to hasten deliveries of the larger seacoast guns. Night shifts were employed, however, the force was largely increased, and the work pushed to the utmost.

It was practicable to accomplish more with regard to rapid-fire guns, and emergency orders were given for their purchase. Up to August 31 some 44 of these guns, with from 200 to 300 rounds of ammunition, were purchased and installed.

As a result of the efforts made by the Department there were delivered to the service, between April 1 and August 31, 1898, 102 seacoast carriages of all calibers.

When hostilities were apprehended the supply of powder and projectiles for seacoast guns was entirely inadequate, only about one-fifth of the supply required being on hand. Appropriations for seacoast ammunition for several years have been reduced to from one-third to one-half—in one case about one-tenth of the estimates. This, as is elsewhere stated, is due to the fact that, where appropriations had to be diminished, diminution was made in powder and projectiles rather than in guns and carriages, which take so much longer to procure. In anticipation of appropriations for the purpose of purchasing ammunition, measures were taken to procure a large supply. The powder and projectile manufacturers came to Washington and arranged to greatly increase their plants. It is evident, however, that it must be the policy of the Government to make appropriations sufficient for keeping up the supply of ammunition as rapidly as the guns can be mounted.

The plant for producing smokeless powder was so small at the outbreak of the war that it was necessary to procure all powders of any kind that could be manufactured. Thus for a time large quantities of cocoa and prismatic powders were obtained. As rapidly as possible, however, this production was diminished and that of smokeless powder increased.

No funds were available for enabling the Department to take any action for increasing field artillery for armies taking the field until April 21, 1898. With the guns and carriages on hand, the number of guns of the ten regular batteries was increased from four to six. They were also provided with the necessary harness. The four new batteries of the Sixth and Seventh Artillery were equipped with their guns, battery wagons, and harness. With the additional guns remaining on hand and those received from the States and the military schools, with the completion of caissons, carriages, harness, and implements, already in an advanced stage, the Department was able to equip sixteen volunteer batteries under the first call for troops early in the war, and was prepared to equip the remaining batteries as fast as they were ready to receive their equipment. Many of the batteries under the second call, however, were not equipped, the necessity therefor no longer existing. By August 20 the output of the Department in guns and carriages would have enabled it to arm and equip a four-gun battery every ten days.

Various depots were established to facilitate the equipment of troops. A large one was established at Tampa, Fla., for arming and equipping all organizations in that vicinity. Benicia Arsenal was used as a depot in the same manner for supplying the Philippine expedition. On the establishment of the camp at Chickamanga it was proposed to establish a depot at that point, but on conference with the Commanding General the plan of supplying troops from Columbia Arsenal was adopted. The distance of this depot from the camp, the congestion of lines of transportation, the difficulty of distributing supplies promptly and correctly, and the necessity for giving precedence for supplies for Tampa caused delays in equipping the troops at Chickamanga. Depots were established at Camp Alger, at Jacksonville, smaller depots at Atlanta, Mobile, and other points. Depots under charge of ordnance officers were also established at Santiago de Cuba and at Ponce, Porto Rico, after the occupation of these places by the United States troops. A detailed account of the very extensive issues of equipments is given in the report of the Chief of Ordnance.

The different arsenals were worked to their full capacity wherever it was practicable to obtain material and the necessary number of employees. Articles obtained by purchase, especially where haste was necessary, were often inferior, both in material and workmanship, to those produced at the arsenals, a fact generally acknowledged by contractors who examined the work. Contract stores are therefore not only expensive, but will have to be replaced sooner than those made at arsenals.

At Springfield Arsenal there were manufactured up to June 30, 1898, some 30,000 magazine rifles, 12,000 magazine carbines, an output of about 11,000 more than during the last fiscal year, but this does not show the large increase incident to the war. The maximum was not reached until August 13, when about 370 per day, or over 100,000 per year, were being manufactured. The average daily output before March 15 was about 120. This output was gradually increased to the maximum by working double shifts of men and putting them on as rapidly as was practicable. The utmost output at Springfield with the present plant would not exceed about 500 per day. This emphasizes the necessity for increasing this plant, and also establishing the plant at Rock Island Arsenal previously referred to.

The lack of sufficient capacity at Frankford Arsenal to meet the demands of the war was seriously felt. Considerable increase is now being made to the plant. The output of caliber .30 smokeless cartridges was increased from 48,000 to 180,000 per day. Of course a large amount of smokeless ammunition for this gun was purchased from private manufacturers.

The total number of seacoast guns and mortars procured from all sources up to the present time has been about 486.

The Department placed under manufacture, partly at the gun factory and partly by contract, 45 rapid-fire guns, and is now preparing to early contract for 93 rapid-fire guns, and these guns will be completed during the coming year. These, with others previously ordered, will give a total number of 338 rapid-fire guns, all of which will use smokeless powder.

The number of seacoast carriages of all patterns contracted for or ordered since October 1, 1897, is 203. The number of rapid-fire carriages of all calibers for the same period is 254. The total number of rapid-fire guns, seacoast guns, and mortars estimated to be mounted by September 30, 1898, is 447.

The 12-inch disappearing gun carriage, reported last year as the most important gun-carriage work of the year, has been completed, and it was found that the time required for firing ten rounds was sixteen minutes fifty-seven and one-half seconds, or an average of one round every one and two-thirds minutes. Considering that the amount of ammunition handled for the ten rounds was about 14,500 pounds, the rate of fire mentioned is a strong testimonial to the excellence of the results obtained. These carriages can be traversed in a complete circle by four men in two minutes, the weight being about 442,000 pounds moved through the angle.

In connection with the rapid firing to be obtained from seacoast carriages, it is believed that an arrangement can be made by which the 8-inch disappearing carriage can be elevated, traversed, and fired by one man, and steps have been taken to have such an arrangement placed on one carriage for trial.

Experiments are being made with two 3-inch field guns, one of which will be made from a single forging and the other built up in the usual manner. The first is about completed. The carriage will be of the nonrecoil type, with a suitable arrangement for a certain amount of lateral traverse, and with a spade to maintain it in a comparatively fixed position. Many minor improvements are being tried with this carriage, such as an improved brake and an improved nave box, which will protect the axles from dust and also preserve the lubricant.

A considerable amount of charcoal powder for seacoast guns had to be obtained for war supply and in order to increase the rate of supply, as there was not sufficient powder of any kind on hand at the outbreak of hostilities; but when it became apparent that there was no danger of attack to be apprehended on the seacoast, orders for this kind of powder were brought to a close.

A suitable formula for smokeless powder has been obtained for cannon of all calibers, and orders were given for its manufacture in large quantities in anticipation of hostilities. It took some time to increase the plant to the necessary magnitude, and therefore a large quantity of charcoal powder, as stated, had to be secured.

A satisfactory powder for the .45-caliber rifle had been determined upon, but, for reasons to be stated, was not available at first.

In February the manufacturers were given orders to work on smokeless powder to their full capacity. Under these orders, with the charcoal powder obtained, the amount on hand brought the supply up to a reasonably safe point. The first issues of powder for field and siege guns were made from charcoal powder on hand; but before the end of May the supply of smokeless powder was ready, and this was issued thereafter.

At the outbreak of hostilities the demand for smokeless powder for the .30-caliber rifle was so great as to preclude the diversion of any of it for the .45-caliber Springfield until a sufficient increase of plant could be made to meet the demand for both rifles. Accidents at the powder works crippled for a time their output and delayed the installation of new machinery. As soon as the increase of plant permitted, that for the .45-caliber was begun, and it replaced the black powder in the manufacture of these cartridges. Though the supply of smokeless powder for the .30-caliber was at one time rendered precarious by accident, yet it was always equal to the demand.

The supply of seacoast ammunition on hand was insufficient, as stated; but pre-

vious to the outbreak of hostilities arrangements were made to supply by June 30 about eighteen projectiles per gun for 8-inch guns, twenty-three for 10-inch guns, eighty for 12-inch guns, and about thirteen for steel mortars.

The supply of powder fairly kept pace with the supply of projectiles.

The number of companies that can manufacture armor-piercing and deck-piercing projectiles is limited, so that orders should be given to have a sufficient number of these on hand at all times.

One hundred range finders, permanent type, and 100 for secondary stations were procured. They were installed as rapidly as turned out by the manufacturers while the war was in progress. This led to some errors in the location of the instruments and in their adjustment, a matter that is being rapidly corrected at the present time.

Very respectfully,

D. W. FLAGLER,

Brigadier-General, Chief of Ordnance.

The SECRETARY OF WAR.

Statement showing amount of funds furnished the Ordnance Department, United States Army, for armament of fortifications.

For—	Amount appropriated by Congress to November 10, 1898.	Amount allotted by the President from "National defense."	Total appropriated and allotted.	Amount required to complete the project for sea-coast defense (exclusive of ammunition).
Seacoast guns, mortars, gun carriages, mortar carriages, ammunition, etc	\$24,789,903.00	\$7,085,035.38	\$31,874,938.38	\$28,369,707.00
Army Gun Factory plant.....	2,251,587.00	.....	2,251,587.00	.....
Gun-carriage plant	431,750.00	.....	431,750.00	.....
Total	27,473,240.00	7,085,035.38	34,558,275.38	28,369,707.00

The supply of powder was a most troublesome question at the outbreak of the war. There are only two establishments in this country which manufacture smokeless powder, and they own patents upon the process. These, however, like all other companies called to aid the Government, responded with alacrity, ran their works day and night, and produced in a short time an ample supply. The same can be said for all manufacturers of tents, clothing, all kinds of guns, cartridges, and other war material, and but for their most energetic exertions we would have been sadly deficient.

The Krag-Jorgensen, or a similar .30-caliber magazine gun, should be manufactured until we have at an early date at least 500,000 stand of those arms in our arsenals, and an ample supply of ammunition for the same. The sea-coast defense should also be brought to completion without delay, so that hereafter no emergency will find us unprepared to meet it.

In this connection attention is called to the difference in the caliber both of the heavy guns and small arms in the Army and Navy. In my judgment they should be alike in both branches of the service, to enable either branch to supply the other with ammunition. The reasons for this are too patent to need elaboration.

SIGNAL SERVICE.

WAR DEPARTMENT, SIGNAL OFFICE,

Washington, October 24, 1898.

SIR: I have the honor to submit the following summary of the essential points of my annual report:

MILITARY TELEGRAPH CABLES.

The necessities of war enlarged the operations of the Signal Corps more than those of any other part of the Army, increasing the corps twentyfold—from an aggregate of 60 to 1,300. The insistent demands for electrical communication left no leisure to the Signal Corps, whose active operations have extended to the Philippines, Porto Rico, and Cuba. Armies in the field, equally with the great military camps of the United States, have never waited for their individual system of electrical intercommunication.

The national policy that left electrical communications of the Army to a corps of 10 officers and 50 men likewise restricted its appropriations, so that less than \$1,000 was available at the beginning of the war, and not exceeding two men were stationed at any single place. The supplementary system of details in the line broke down absolutely, as the Chief Signal Officer has repeatedly pointed out it always has in past campaigns.

The important work of the Signal Corps waited for allotments from the national defense and the authority of Congress for a volunteer corps, both of which came so late as to threaten serious deficiencies in the operations of the corps, but fortunately the high professional standing and ability of the regular officers appointed to the highest grades, reenforced by the practical skill and knowledge of the regular sergeants promoted to second lieutenants, made the untrained material valuable in a wonderfully short time, a result that depended very largely on the intelligence and skill of the volunteers of the Signal Corps.

The first important work was a system of military telegraph cables between the adjacent forts in the neighborhood of important cities, thus perfecting the electrical intercommunications that the Chief Signal Officer had urged unavailingly on Congress for the past six years. Cables have been laid near Boston, New York, Philadelphia, Washington, Newport, R. I., Charleston, New Orleans, and are on the ground for San Francisco.

ELECTRICAL INSTALLATION AT ARMY POSTS.

On the approach of the war the electrical installations for the fire-control system, an absolutely necessary adjunct of disappearing guns, developed an important duty on the Signal Corps, which has promptly carried out the plan. Electrical communications between the range, control, and firing officers have been provided for every

battery established, and such instruments furnished as have been indicated to the Chief Signal Officer. In connection with this work the Signal Corps has performed any duties connected with electrical work at artillery posts, temporary camps, or elsewhere demanded by public interest.

PROPOSED HAVANA CAMPAIGN.

With the assembly of an army in Florida, the Chief Signal Officer brought together every available signal corps man, and supplemented them by details from the line. The promotion of sergeants left only 30 skilled signal men, and the enlargement in time of war of this corps necessarily produced an organization far below the high standing set for the regular establishment. Herculean efforts on the part of the officers supplemented the lack of time, and the adaptability of the American soldier contributed its share, so that the work of the corps was satisfactory, though, doubtless in some instances its efficiency could have been increased.

MANILA CAMPAIGN.

The organization of a force for operations in the Philippines, necessitated the withdrawal of officers and men from Florida. As the Pacific coast had been stripped of men and available material, the work of the organization was hampered. The corps was, however, able to furnish Lieut. Col. Richard E. Thompson and Maj. George P. Scriven, both Spanish speaking officers, with an effective force suitably equipped by a lavish expenditure of money and energy. Official reports indicate that Lieutenant-Colonel Thompson and his command have justified the confidence imposed in them, and in addition to the efficient discharge of ordinary duties, have contributed their share to the luster gained by the American arms in the far East. The war cable was laid in the harbor, and at a suitable time the English cable to Hong-kong repaired. Telephonic and telegraphic connections were maintained in garrison and field, and the Signal Corps carried its lines into advanced trenches, repaired them under fire, and in the final assault ran a flying line up the open beach and established an advance station. In addition, a signal detachment led the army with signal flags displayed so that the fire of the navy would fall in advance of the army, and displayed these flags as the first emblems of the United States in the enemy's forts. The gallantry and efficiency of Lieutenant-Colonel Thompson and officers and men of the Signal Corps have attracted the attention of the commanding general of the Philippines expedition, and have received notice at the hands of the President.

VOLUNTEER SIGNAL CORPS.

As the regular corps could not furnish even one officer to each authorized army corps, Congress authorized a volunteer Signal Corps for 21 divisions, but only 17 divisions were provided for. The principle on which this corps was organized determined its subsequent efficiency in the field. Congress restricted two-thirds of the appointments to skilled electricians and operators, and both the President and Secretary of War supported the desires of the Chief Signal Officer to make it a corps d'elite. The regular officers, selected originally by competition, filled the field positions. They were without exception in the prime of life, thoroughly skilled in specialties, admirably fitted for administrative duties, and so capable of arduous

campaigning that not a single officer was invalided during the war, whether at Santiago, Porto Rico, or Manila. Subordinates were procured from lieutenantancies in the regular line, from graduates of West Point in civil life, from trained sergeants of the Signal Corps, and most of the others were selected from men trained in electrical pursuits, with especial ability necessary to success. Time failed for examination and the appointments were made by selection. The corps was not only organized in thirty days, but one company was put in the field before Santiago de Cuba. Almost without exception the officers proved efficient, and the enlisted men challenged any other corps to produce their equals.

SANTIAGO DE CUBA CAMPAIGN.

The work in connection with this campaign consisted, first, of electrical communications between the War Department and Santiago de Cuba; second, signal work proper, and third, war ballooning.

The establishment of electrical communications with the Fifth Army Corps at Santiago was an extremely important and difficult piece of work, which was fortunately facilitated by the previous requests of Major-General Miles that the Chief Signal Officer should arrange similar communications for the Havana campaign. Under the personal direction of the Chief Signal Officer, the field work was done by Col. James Allen, whose executive and administrative efforts, both while acting under the orders of the Chief Signal Officer, and also while acting independently in the field, were characterized by an energy, skill, and intelligence that marks him as an officer of no mean ability. Cables had to be manufactured to order, steamer chartered, cable gear obtained, and the Chief Signal Officer opened negotiations with commercial telegraph companies whereby the whole system would be harmonious. As a result of two months' labor, the Signal Corps opened a station at Caimanera, Guantanamo Bay, June 20, a day in advance of the landing of General Shafter's army, and within five minutes telegraphically of the Executive Mansion and War Department. Later, Colonel Allen furnished General Shafter's army with material for field telegraphs to replace those left at Tampa, repaired the French cable, and later, laying a signal-corps cable, opened up communication with General Shafter's headquarters, placing it within twenty minutes of the War Department. The discouragements, difficulties, and hardships involved in this work were such as to make its successful completion a source of congratulation to every American.

Prior to the establishment of this system of electrical communication, Colonel Allen had been engaged in destroying the enemy's cables off Santiago, with a chartered ship only partially equipped and working within range of the enemies batteries. Two cables were raised and broken or cut—one from a depth of 5,000 feet and the other in a depth exceeding 6,000—under conditions that make this a notable achievement, which was possible only by the unrelenting zeal and persistency of Colonel Allen and his subordinates. Off Santiago all cables except one leading from Cuba were interrupted, the work being continued until the bombardment of the forts. The cable steamer was then so exposed to the enemy's fire that the captain and crew refused to longer navigate the vessel, the work of cable cutting being done by Colonel Allen's military force. Brevets have been recommended for Colonel Allen and Capt. M. L. Hellings for this work under the fire of the enemy.

TELEGRAPH AND SIGNAL WORK AT SANTIAGO.

These operations were under Lieut. Col. Frank Greene, Chief Signal Officer Fifth Army Corps, who worked under the disadvantages involved under orders to leave the field telegraph section at Tampa. The successful installation and operation of telephone and telegraph lines between the headquarters of the commanding general and his subordinate commanders and supply depot, as well as cable to Washington, depended primarily on material supplied by Colonel Allen, independent of the Fifth Corps, which had been provided by the Chief Signal Officer of the Army, who foresaw the absolute necessity of telegraphic facilities in such a country. Telephone lines were constructed as rapidly as the commanding general advanced, and the lines were operated continuously and successfully in range of the fire of the enemy and all other adverse conditions, and ultimately the lines extended along the whole front of the army, stations being maintained in trenches within 400 yards of the enemy's lines.

MILITARY BALLOONING.

Lack of funds made it impossible for the Signal Corps to supply in time new balloons, and the balloon in the Santiago campaign was one made by the Signal Corps with most limited accessories. The balloon party landed June 28, and three ascensions were made, on June 30, under Colonel Maxfield's directions, at suitable points without range of the enemy's fire, which resulted in increased knowledge as to the direction and course of such roads and streams as had remained undiscovered during the previous week.

The ascent of July 2 was made at a point designated by the chief engineer officer, Fifth Army Corps, Lieutenant-Colonel Derby.

The utility of the balloon was then demonstrated, and as Brigadier-General Kent, in his official report, says:

"Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back, leading to the left to a ford lower down the stream."

This discovery relieved the congested conditions of the main road and allowed the speedy delivery of troops of this brigade in their proper place.

TELEGRAPH CENSORSHIP.

A most responsible as well as a most delicate duty of the Chief Signal Officer was the exercising, not of press censorship, but of telegraph censorship, principally over the cables whose operations are conducted on American soil.

Thanks are due to the officials of the Western Union Telegraph Company, the Commercial Telegraph Company, the United States and Hayti Cable Company, the French Telegraphic Cables Company, the Mexican Telegraph Company, the Direct Cable Company, and the Anglo-American Cable Company for the loyal spirit displayed by their presidents and prominent officials and for their hearty cooperation in many emergencies. Cipher dispatches were forbidden to the West Indies and any messages in plain text which conveyed important information concerning military operations or such as were detrimental to the interests of the country. The Associated Press and Sun Press Association and the great daily journals of the

country not only held up the hands of the Chief Signal Officer in this duty, but also refrained at critical times from publishing information detrimental to the public interests. All messages to or from the West Indies were carefully supervised. Through the Signal Corps censorship a rich harvest of information was reaped from the telegrams of newspaper correspondents, blockade runners, merchants, personal dispatches, etc.

While hundreds of improper messages were quietly deposited in the wastebasket, others were allowed to pass freely as leading up to other and more valuable information. Thus was gained information as to operations of blockade runners, the activity of Spanish agents, and the movements of Spanish ships. The most valuable service rendered by the Signal Corps was the announcement to the President and the Secretary of the Navy on May 19 that Admiral Cervera's squadron had that very day entered the harbor of Santiago, information due to the extraordinary activity and intelligence of Colonel Allen, of the Signal Corps. Fortunately for the country the President and Secretary of the Navy were both alive to the situation, and, acting on the reports and representations made to them by the Chief Signal Officer, gave orders the very next day that led to the blockading of Santiago and the ultimate destruction of Cervera's squadron. As has been officially said by Secretary Long, all military and naval movements depended upon the locating of this fleet, and on this information was based the plan of the Santiago campaign, which ended the war.

It is an interesting anticlimax that Colonel Allen also reported to the Chief Signal Officer the destruction of Cervera's fleet, and this information was conveyed to the President fourteen hours in advance of other official advice.

PORTO RICAN CAMPAIGN.

The work of the Signal Corps in this campaign affords a beautiful example of the rapidity and efficiency with which electrical communications can be established and maintained between military posts and advancing armies when the commanding general of such armies takes proper equipments. Colonel Allen, in general charge of the Signal Corps work, added to his laurels gained in the Cuban campaign, and the efficient services rendered by Lieut. Cols. Samuel Reber and William A. Glassford kept in direct communication the commanding general, Major-General Miles, with every advance command with which speedy communication was desired. As a consequence, the peace protocol reached the outposts of Generals Brooke, Wilson, and Henry within thirty-three minutes of the time it was received at Ponce, and thus prevented battles at two points where the troops were moving out. Such was the activity of the Signal Corps that at the date of the peace protocol it was operating 170 miles of line, covering nearly one-half of Porto Rico, and more than 200 messages were handled daily at Ponce alone.

FLYING-TELEGRAPH LINES.

At every large camp within the limits of the United States has been established an independent system of either or both telegraph or telephone lines whereby commanders have direct communication with subordinate headquarters, quartermasters, hospitals, etc. Similar facilities have been arranged for the great military

hospitals. In these operations more than 250 miles of line have been built and operated. It is gratifying to report that the flying-telegraph system has stood successfully the test of camp service and field campaigning.

TELEGRAPH LINES OF CUBA AND PORTO RICO.

As these lines belonged to Spain, their ultimate disposition is a matter which rests on future legislation. At present, however, these lines are under the administration of the Signal Corps of the Army. Such reconstructions and repairs are being made of Cuban lines as are necessary for military administration. The question of connecting Porto Rico with Cuba by cable is worthy of attention. A cable could be laid from Porto Rico to Mayaguez for about \$600,000, and for \$50,000 the lines between Santiago de Cuba and Havana could be put in first-class condition. This would bring Cuba and Porto Rico in communication with the lines of the International Ocean Telegraph Company, an American corporation operating cables to Florida.

OFFICE OF THE CHIEF SIGNAL OFFICER.

This office, undermanned at the beginning of the war, has been subjected to a tremendous strain in doing its work. The necessity of providing a proper permanent clerical force should receive prompt and favorable action of Congress.

APPROPRIATIONS AND ESTIMATES.

Several years since the appropriations for the Signal Corps were reduced from \$22,000 to \$18,000, this seriously crippling the service. Out of the very liberal appropriations made by Congress for war purposes there will remain nearly \$200,000. Reasonable appropriations in times of peace are however far more efficient for public purposes than the most lavish in times of war.

REGULAR SIGNAL CORPS.

The necessity of reorganizing and enlarging the Signal Corps of the Army is beyond question. The regular Signal Corps now consists of 1 brigadier-general, 1 colonel, 1 lieutenant-colonel, 1 major, 5 captains, 1 first lieutenant, and 50 sergeants. It should be increased by 1 colonel, 1 lieutenant-colonel, 2 majors, 5 captains, 9 first lieutenants, 40 first-class sergeants, 50 corporals, 250 first-class privates, and 50 second-class privates. Original vacancies should be filled from officers who have served in the war, and no officer should be appointed until he has been approved by a Signal Corps board as to his physical, moral, and mental qualifications. The high standing of the regular officers has insured during the present war the efficiency of the corps, and its future can only be assured by similar restrictive methods, which should insure the highest order of ability in the Army.

THE LIBRARY AND WAR DEPARTMENT DOCUMENTS.

The library has proved of great utility to the Army, although the demands upon it have been necessarily intermittent during the war. The librarian should receive a salary of \$1,600 and have two assistants, the present system of detailing temporary clerks being more expensive and less efficient than would a regular assignment.

Action was taken by the Chief Signal Officer to insure the printing and distribution of such military works to the Volunteer Army as are indispensable for instruction

and drill. More than 100,000 copies of such publications, for the use of the Volunteer Army and National Guard, have been printed and distributed.

Congressional legislation is recommended so that the National Guard may be permitted to purchase military publications, such as Army Regulations, Infantry Tactics, and the Service Manuals.

A. W. GREELY,

Brigadier-General, Chief Signal Officer of the Army.

THE SECRETARY OF WAR.

The skill and perseverance displayed by the Signal Corps are worthy of commendation, and the excellent work performed is duly recognized.

The recommendations of the Chief Signal Officer are commended to the favorable consideration of Congress.

RECORD AND PENSION OFFICE.

RECORD AND PENSION OFFICE, WAR DEPARTMENT,

Washington City, October 20, 1898.

SIR: In compliance with your instructions, I have the honor to submit the following summary of my annual report, dated the 1st instant:

During the fiscal year ended June 30, 1898, as in former years since the organization of the Record and Pension Office, the public business was promptly dispatched, more than 95 per cent of all cases received having been disposed of within twenty-four hours from the time they reached the office, and at the close of business hours on the last day of the fiscal year not one case remained unacted upon.

One hundred and ninety-three thousand two hundred and ninety-six cases were received during the fiscal year, being a large increase over the receipts for the preceding fiscal year, showing a corresponding increase in the current business of the office. This increase is distributed among all classes of cases with which the office has to deal, including applications for "remuster" under the act of February 24, 1897, calls from the Commissioner of Pensions and the Auditor for the War Department for the military histories of former officers and enlisted men, desertion cases, and the general correspondence of the office.

The "remuster" cases arise under the act of Congress approved February 24, 1897, "to provide for the relief of certain officers and enlisted men of the volunteer forces" in service during the war of the rebellion. This act was adopted as a substitute for the similar act of June 3, 1884, and the acts amendatory thereof, which expired by limitation June 3, 1895. The old law provided for payment for services rendered as commissioned officers by persons who were not recognized by their muster into service as of the grades to which commissioned at or for the time the service was performed, and it also gave to its beneficiaries a pensionable status. The new law confers the same material benefits, and, in addition, recognizes the persons to whom it is applied as having been in the United States military service in the grades to which they were commissioned from the dates upon which they entered upon duty, under the conditions specified in the law, or otherwise fulfilled the requirements of the law.

During the fiscal year 5,038 applications were received for removal of the charge of desertion under the provisions of the act of Congress approved March 2, 1889, and

the acts amendatory thereof. These applications, however, do not include the cases in which the charge of desertion was incidentally encountered and considered under the law without a formal application therefor. This latter class of cases exceeded the former class in number, the incidental cases having numbered 7,897, making a total of 12,935 cases adjudicated during the fiscal year under the provisions of the act referred to.

By an act approved January 26, 1897, "for the relief of telegraph operators who served in the war of the rebellion," the Secretary of War was "authorized and directed to prepare a roll of all persons who served not less than ninety days in the operation of military telegraph lines during the late civil war, and to issue to each, upon application, unless it appears that his service was not creditably performed, or to the representatives of those who are dead, suitable certificates of honorable service in the military telegraph corps of the Army of the United States." * * * It was provided in the enactment that it should not be construed to entitle its beneficiaries to "any pay, pension, bounty, or rights not herein specifically provided for."

By direction of the Secretary of War the Record and Pension Office was charged with the preparation of the certificates provided for by the law, and with their transmission to the persons entitled thereto, as well as with all correspondence or other details in connection with the subject. One hundred and twenty-eight certificates were issued up to the end of the fiscal year.

The work of reproducing the individual military and medical records of the officers and enlisted men of the volunteer forces by the index record-card system has been prosecuted with all of the clerical force available for the purpose, and such progress has been made as the nature of the records would permit. The great mass of the volunteer records of all wars in which the country has been engaged (except those of the recent war with Spain, which have not yet been filed in this office) have been carded, and the work during the past year has been generally confined to records of a miscellaneous character, difficult of reproduction, and the transcription of which is necessarily slow, but which it is important should be included in the general system of index-record cards.

The index-record card work for the fiscal year included the preparation of 637,633 military cards (479,811 of this number were a consolidation of 2,898,781 cards made from monthly returns) and 9,067 medical cards, making, with the number prepared in prior years, a total of 40,215,914 of the former and 6,970,663 of the latter class, aggregating 47,186,577 index-record cards prepared up to and including June 30, 1898.

One object of the transfer of the records of the Revolutionary War and the War of 1812 to the War Department, as announced in the act approved August 18, 1894, providing for their transfer, was that they should be "prepared for publication." Congress will doubtless make the necessary appropriation for the publication of these records at the proper time, but it is clearly not advisable to undertake the publication of any portion of them, especially of those relating to the individual histories of officers and enlisted men, until the compilation shall have been completed and every available source of information shall have been exhausted. In view of the difficulties encountered and the consequent slow progress of the work of compilation, the date of the contemplated publication is necessarily uncertain and can not even be approximated with any degree of accuracy, but it is evident that the date of publication is still somewhat remote.

It is due to the employees of this office to state that the prompt and satisfactory dispatch of the business of the office is the natural result of the commendable industry, faithfulness, and zeal which they display in the performance of their respective duties.

Very respectfully,

F. C. AINSWORTH,

Colonel, United States Army, Chief Record and Pension Office.

The SECRETARY OF WAR.

HALL OF RECORDS.

Section 8 of the act "to provide for temporarily increasing the military establishment of the United States in time of war, and for other purposes," approved April 22, 1898, provides:

That all returns and muster rolls of organizations of the Volunteer Army and of militia organizations while in the service of the United States shall be rendered to the Adjutant-General of the Army, and upon the disbandment of such organizations the records pertaining to them shall be transferred to and filed in the Record and Pension Office of the War Department. And regimental and all other medical officers serving with volunteer troops in the field or elsewhere shall keep a daily record of all soldiers reported sick or wounded, as shown by the morning calls or reports, and shall deposit such reports with other reports provided for in this section with the Record and Pension Office as provided herein for other reports, returns, and muster rolls.

As indicated in the above-quoted law, there will soon be a large increase in the records and files of this Department, and the need for additional office room is very urgent. Immediate provision to meet the needs of the Department is necessary, and in this connection the statement on this subject contained in my last annual report is repeated:

The departments are crowded with files of official papers to the detriment of the working force and the serious inconvenience of the public business. Costly public buildings erected for office purposes should not be used for storage. The files not in current use should be stored elsewhere. A hall of records becomes more and more necessary each year.

The superintendent of the State, War, and Navy Department building, in his report for 1896, submitted the following remarks on this subject:

The accumulation of records in this building not only displaces space needed by clerks, but adds considerable weight upon the floors. Some of these records are rarely referred to, while others may be frequently called for. All are too valuable to be destroyed. The corridors of the State Department are stacked with records, not only in a comparatively exposed place, but obstructing the corridor. The log-books and other records of the Navy Department, most of which have only a

historic value, have already filled the space allotted and are still accumulating. The records of the War Department are quite as bulky as those above mentioned. From the report of the Quartermaster-General for 1880, I quote the following:

"The papers relating to the claims filed in this office are very bulky and are valuable. They contain the evidence for and against claims reported above as amounting, on 1st of July last, to 12,778 miscellaneous claims and accounts, \$6,947,000, and 11,676 claims under act of 4th of July, 1864, \$5,960,172.55.

"A fireproof storehouse of simple and cheap construction could be built on some place convenient to the executive offices for about \$200,000, which would afford perfectly safe and convenient storage for such of these papers as have been finally disposed of, and for such others as are seldom consulted. Telegraphic or telephonic communications with the superintendent would bring to every office in a few minutes any paper needed for reference."

It will be observed that the remarks quoted contemplate the erection of a building, and while this is necessary to secure a suitable fireproof structure, the contingency mentioned will be a reality before a building can be erected, and therefore it will be necessary, for the present, to rent the most suitable building that can be obtained. The Lemon Building, on New York avenue, between Seventeenth and Eighteenth streets, has been rented for \$6,000 per annum. The building is five stories, with windows on all sides, and well adapted for office purposes, but not fireproof. It is, however, completely occupied by several of the bureaus of the Department, and more room will soon be needed for the records of the Volunteer Army.

WAR RECORDS OFFICE.

WAR DEPARTMENT, WAR RECORDS OFFICE,

Washington, October 1, 1898.

SIR: I have the honor to submit the following summary of the annual report of the Board of Publication of the Official Records of the War of the Rebellion:

The publication was carried forward; six books were published and four put in type during the fiscal year. Series I is now completed, save two volumes reserved or future supplemental matter.

The office has received 108,357 books and 60,000 atlas plates during the year. Of these all the plates and 99,727 books were distributed, leaving an increase of 8,630 in the number stored in the War Department unclaimed, amounting now to 67,505 books and 105,015 plates of the atlas. A general distribution of these books and plates can only be made by authority of Congress, and it is respectfully recommended that such authority be requested.

There was appropriated for the service of the last fiscal year, \$145,380, of which was expended \$127,291.05, leaving a balance of \$18,088.95, against which there are outstanding obligations estimated at \$10,147.84.

The appropriation for the current year is \$94,080.

There are now 22 civilian employees on the rolls of this office—less than one-third of the number given in the last annual report; and this reduction has been accomplished without material decrease in the capacity of the office.

Respectfully,

F. C. AINSWORTH,

Colonel, United States Army, President of the Board of Publication.

THE SECRETARY OF WAR.

The recommendation of the president of the Board of Publication of the Official Records of the War of the Rebellion is concurred in, that Congress authorize a distribution of the volumes of this publication and the plates of the atlas now stored away, and occupying space needed for other purposes.

THE BATTLEFIELD COMMISSIONS.

WAR DEPARTMENT,

GETTYSBURG NATIONAL MILITARY PARK,

Gettysburg, Pa., October 24, 1898.

SIR: The Gettysburg National Park Commission respectfully submit the following summary of their work at Gettysburg, with suggestions for its successful prosecution and completion:

Crawford avenue has been completed, leading northward from Devil's Den through the Valley of Death and across Plum Run to the Wheatfield road. The bridge over Plum Run was constructed in the same substantial style as the others which have been built on this field.

The Commission having heretofore given attention to the avenues of the park on the Second and Third Days' field have thought it proper this year to look after those on the First Day's, and have entered into contracts for the construction of Reynolds and Howard avenues, which mark the lines respectively of the First and the Eleventh Corps of the Union Army and are together nearly 3 miles long. Howard avenue is finished. It leads from the Harrisburg road near Rock Creek westward by Barlow's Knoll to the Mummasburg road, is 20 feet wide, and constructed on the Telford plan in the best manner. Reynolds avenue is in two sections. Section 1 is about completed, and section 2 will be finished early next spring.

A number of other avenues mentioned in previous reports are urgently needed to render accessible important parts of this battlefield. The Commissioners would have pushed them this year but for the lack of adequate means. Among them are the avenues on the Cavalry field and the road leading there.

The Commission long since constructed Telford avenues along the Confederate battle line of the second and third days' fight on Seminary Ridge, on each extreme of said line, the left of Hill's corps and the right of Longstreet's, aggregating over 3 miles in length. Between these two parts of Confederate avenue there is a gap of 2 miles along the left of Longstreet's corps and the right of Hill's, across which the Commission have been very anxious to construct the link needed to connect the two extremities aforesaid, and thus complete the Confederate avenue from

the Chambersburg pike, northwest of the town, southward and eastward to Round Top, a distance of 5 miles.

No part of this battlefield is more interesting than the part covered by that gap in the Confederate avenue. Not only did important movements of the second day's battle originate there, but it was there the Confederate column of the third day under Longstreet was formed and began its advance on that final charge led by Pickett, so sublime in its daring and so tragic in its fate.

There is no part of this battlefield so inaccessible as this. Encumbered by bushes and briars and cross fences, with not even an open footpath over it, visitors here never see this ground.

The Commission have not constructed this avenue because the Government does not own the land, and the owners ask exorbitant prices which the Secretary of War and the Commission do not feel justified in paying. Most of it is owned by a land company, and the price they ask is \$500 an acre, or \$400 per acre if the Government will buy their entire holdings of 1,000 acres or more, either of which prices is more than ten times its market value. More than two years ago the Secretary of War instructed the Commission to begin proceedings in the circuit court to condemn the lands needed for said avenue, together with some adjacent woodlands which it was important to preserve, the area being 105 acres, and the said proceedings were begun at once and are still pending. A jury of view was appointed, inspected the lands, heard the testimony offered on both sides, and made an award that was liberal to the respondents, ranging from \$46 to \$200 per acre, but they appealed to the court in term at Philadelphia, and have since resorted to vexatious delays and continuances, so that the case is still pending and undetermined. Thus this important part of the Confederate lines is prevented from being opened and the military positions on it fixed and marked as intended by the Government.

The Commission wish to emphasize the fact that the main hindrance to marking Confederate lines and positions, not only on the grounds just above spoken of, but on almost all of this field—as was the intention of Congress in establishing the Gettysburg National Park—is that the lands whereon said lines and positions are situated are not yet owned by the United States. Prompt action by the courts in condemning the needed lands when held at exorbitant prices, and liberal appropriations by Congress for the purchase of lands which can be bought at reasonable rates, are the two main requisites for the realization of the patriotic purposes of the Government with reference to this battlefield.

The positions of the United States regular troops in this battle, consisting of 11 regiments of infantry, 4 regiments of cavalry, and 22 batteries of artillery, have been accurately located, and are carefully noted on the maps and on the ground by markers, so that when the Government shall take steps to erect monuments to these troops, which their gallant services here entitle them to, there will be no difficulty in placing them.

Handsome and durable iron tablets with appropriate inscriptions are erected on substantial iron pillars designating and briefly describing the services rendered by each of the following Confederate batteries, the respective positions of which have been marked for some time by mounted guns of like caliber as those of which each battery was composed, viz:

Taylor's Virginia Battery, Woolfolk's Ashland (Va.) Artillery, Parker's Virginia Battery, and Jordan's Bedford (Va.) Artillery, of Alexander's Battalion. Manly's North Carolina Artillery, Fraser's Pulaski (Ga.) Artillery, McCarthy's First Richmond Howitzers, and Carlton's Troop (Ga.) Artillery, of Cabell's Battalion. Bachman's German (S. C.) Artillery, Garden's Palmetto (S. C.) Light Artillery, Latham's Branch (N. C.) Artillery, and Reilly's Rowan (N. C.) Artillery, of Henry's Battalion Johnson's Virginia Battery, Rice's Danville (Va.) Artillery, Hurt's Hardaway (Ala.) Artillery, and Wallace's Second Rockbridge (Va.) Artillery, of McIntosh's Battalion. Cunningham's Powhatan (Va.) Artillery, Watson's Second Richmond Howitzers, and Smith's Third Richmond Howitzers, of Dance's Battalion.

The above are all the Confederate batteries which occupied positions on ground of which the title has yet been acquired by the Government.

Inscriptions are prepared and tablets of iron similar to those mentioned above will shortly be erected to designate the positions and briefly describe the evolutions and achievements of the following Confederate infantry commands, viz:

Kershaw's Brigade of McLaws's Division, and with its Second, Third, Seventh, Eighth, and Fifteenth South Carolina and Third South Carolina Battalion; Semmes's Brigade of McLaws's Division, with its Tenth, Fiftieth, Fifty-first, and Fifty-third Georgia regiments; Anderson's Brigade of Hood's Division, with its Seventh, Eighth, Ninth, Eleventh, and Fifty-ninth Georgia regiments; Benning's Brigade of Hood's Division, with its Second, Fifteenth, Seventeenth, and Twentieth Georgia regiments; Robertson's Brigade of Hood's Division, with its First, Fourth, and Fifth Texas and Third Arkansas regiments; Law's Brigade of Hood's Division, with its Fourth, Fifteenth, Forty-fourth, Forty-seventh, and Forty-eighth Alabama regiments.

The method of marking the positions of troops on this field, as approved by the War Department, is to place the principal tablet or monument of each command at the position occupied by the command in the main line of battle, and to mark the several important positions subsequently reached by each command in the course of the battle by ancillary tablets with appropriate brief inscriptions giving details and noting the day and hour as nearly as possible.

The Confederate commands above mentioned are the only ones whose chief positions were upon ground now owned by the United States and are therefore the only ones which can be marked until the Government shall acquire the lands on which they formed and fought.

The Commission are much gratified to notice an awakening of interest in influential quarters among the people of the Southern States concerning this battlefield and the importance of erecting monuments to commemorate the heroism of their soldiers here, as the people and States of the North have done, and it is hoped that Congress will recognize and foster this praiseworthy sentiment springing up in the South by liberal appropriations needed to purchase and acquire title to the lands on which the Confederate troops operated and where their monuments must be placed.

They feel warranted in declaring that the Gettysburg National Park, though yet incomplete, is already the best marked battlefield in the world, and to all those who desire to understand the character and the extent of the work they say, Come and see.

While the Commission are satisfied that they could judiciously and economically

use, during the next year, a much larger sum, they earnestly request and recommend that not less than \$75,000 be appropriated.

JOHN P. NICHOLSON,
WM. M. ROBBINS,
CHAS. A. RICHARDSON,
Commissioners.

Hon. RUSSELL A. ALGER,
Secretary of War.

WAR DEPARTMENT,
CHICKAMAUGA AND CHATTANOOGA NATIONAL PARK COMMISSION,
Chattanooga, Tenn., October 26, 1898.

SIR: I have the honor to submit for your consideration a synopsis of the Annual Report of the Chickamauga and Chattanooga National Park.

Notwithstanding the occupation of the Chickamauga section of the park by the National troops during most of the season just closing, an unusual amount of monument work of a high grade was undertaken by the State commissions. The States of Wisconsin, Illinois, Kentucky, and Georgia have each been engaged in erecting general monuments for their respective States, which are in addition to the monuments and markers to individual organizations. This work made a new departure in State work, as this has heretofore been confined chiefly to monuments commemorating regiments and batteries. The information of the commission indicates that from this time forward there will be earnest rivalry among the States in this matter of general monuments.

The State of Illinois is erecting two of this class, one on Missionary Ridge, near Bragg's headquarters, of most commanding proportions, and a second on Orchard Knob. Georgia has nearly completed the most imposing shaft on the Chickamauga field. Kentucky will, next month, dedicate a monument of unique character, there being no other like it in the park. It commemorates both Union and Confederate troops, and the design is striking and most interesting. Wisconsin has completed a fine State monument on Orchard Knob. Indiana has secured locations for two of most imposing proportions. New York has completed two, one on Orchard Knob, and one on the Hooker battlefield on Lookout, which are not exceeded by any of their class in the country, and the commission of that State has prepared designs for a general monument on Lookout, to cost \$50,000. All of these are of granite and bronze.

In addition to this work, Tennessee has erected 47 markers of beautiful design; Georgia has placed 55, which are really monuments; Indiana has erected 50, and 25 more await their turn. Wisconsin is also preparing to erect markers on Missionary Ridge. The State of New York has also secured sites and is erecting monuments throughout Lookout Valley, where her troops were engaged under General Hooker; and also at Ringgold, Ga., at the extremity of the Government road which reaches that battlefield from Chickamauga. This is all work of the very first class, and it is to be followed by the location of markers on these fields by several of the other States whose troops were there engaged. Measures are in process for adding these sites to the park for a nominal consideration.

At the opening of the season the entire park tract was in excellent condition. The roads were resurfaced during the damp weather of the winter and early spring, and the spring burning of the leaves in the forests had finally very nearly overcome the sprouting of underbrush. All the dead timber had been cleared out of the forests. In short, if it had been known in advance that an army was to occupy the park it is difficult to see how the entire tract could have been put in better shape than the troops found it upon their arrival.

From the first week of April, when it was determined to assemble the regulars at Chickamunga, until the present time, the labors of the park force have been mainly directed, under your orders, to assisting in securing the comfort and convenience of the troops. Upon learning that the regulars would begin to arrive April 14, a large supply of wood was gathered from the park, and teams procured to haul it, until the wagon transportation on the way could be set up and made ready for use, and the quartermaster could procure wood under the regular methods of advertising for proposals and awarding contracts. The park force in this way furnished the 7 regiments of infantry, 6 of cavalry, and 10 batteries with wood for ten days, and in the meantime hauled the baggage of a number of the commands.

Lumber was also furnished for floors of all hospital tents, and water barrels from the park water supply for each hospital, for regimental headquarters, and for each company mess. Later, all of these liabilities were assumed and paid by the chief quartermaster. The regulars were in the park from the middle of April until after the middle of May. The water supply was abundant, and the same as afterward caused much complaint on the part of volunteers. It consisted of nine artesian wells and four bold springs of inexhaustible capacity. These latter, in addition to the drafts upon them for the men, furnished the horses of the six cavalry regiments and of the ten batteries, together with all the mules of the trains. There was no serious sickness among the regulars, and only one death. This healthful condition was the same as with the regulars assembled at the time of the dedication of the park, when some 1,200 were camped here for a month without a single patient in the hospital. The conditions were the same with the two companies of regular artillery which were brought one year since from near New Orleans to escape yellow fever and remained through the remainder of autumn without sickness.

Upon notification that 50,000 volunteers were to be assembled in the park, the necessity of rapidly perfecting their drill made it imperative to use the open grounds where the regulars had camped for drill grounds, and put the camps in the forests, of which there were about 5,000 acres in the park. These were, however, very open woods, with all underbrush cut out, and grass growing everywhere. The average number of trees to the acre is about 60, and shade just sufficient for comfort in the hot months. The surface soil is mixed with gravel, and after rains camps became speedily dry. There was no part of this wooded surface that the sun did not reach some time during every clear day. These statements as to the camps in the woods seem pertinent in view of the widespread misrepresentations of this feature of the encampment.

Placing the camps in the forests left about 2,000 acres of open fields for drill purposes. With the large force present, even this area was barely sufficient for the work in hand of rapidly preparing a large army for active field service.

As the wells in the park had been arranged for the visiting public, they were mainly in the open grounds in the western portion of the park. Four of the five large springs of the park were also in this section. It therefore became necessary to provide a supply in the forest section, and work with this end in view was at once undertaken and pushed to completion with great energy by the engineer of the park. During the encampment twenty-seven additional wells were drilled through the solid rock underlying the park. By casing and surrounding the wells at the surface with masonry set in hydraulic cement, surface contamination was rendered impossible.

While this work was in progress an emergency pipe line, designed primarily to provide water for cooking, for the large number of animals, and for washing, was recommended and authorized by the Secretary of War, and constructed by the engineer of the park. The intake was established on Chickamanga Creek at the farthest point of park ownership of the stream, and above any possible wash from the camps, in spite of all that has been asserted to the contrary. This stream is fed entirely from mountain springs, and the valley it flows through is exceptionally clean and wholesome. Ten miles of mains and laterals were expeditiously laid, furnishing abundant water to nearly all the camps, and shower baths for all who cared to arrange them.

All the springs and wells on the park, and the water of the pipe line, were analyzed by competent chemical authority as soon as any question was raised as to the purity of the water supply, and all in use by troops pronounced fit for domestic use, except two wells, which at first were regarded as doubtful, and their use stopped, but which were found by more thorough analyses to be good. The pipe-line water was twice analyzed chemically, and once bacteriologically by Dr. C. F. Craig of the Army, a recognized authority, and pronounced good. While the water supply of the park was abundant and wholesome, the outcry against it, though not based on analyses, became so general as to lead to much hauling of spring water for considerable distances, to the great inconvenience of the troops and the hospitals, and the unnecessary disturbance of the country.

The damage done to the park by the troops proves inconsiderable. The soldiers manifested unceasing interest in the monuments, markers, tablets, and batteries, and very few accidents to any of these occurred, and none to the monuments, because of the universal inclination to take good care of them.

The roads were severely tested by the immense hauling over them. They stood this wear in a way to excite general surprise, and to demonstrate their thorough construction.

The damage to timber by animals was the most serious injury, but when the trees thus killed are out there are very few spots where they will be missed.

One important result has followed which goes far toward compensating for all damage. The hay fed to animals in every camp has spread grass, which is now growing vigorously in all parts of the park, and has already established so many centers of growth as must lead to a carpet of grass through the entire forest section, which will rapidly replace the wild grass.

The work of restoring the park is rapidly progressing. With the exception of resurfacing the roads where necessary and cutting out the dead timber, it will be

virtually finished by the close of the present season. The road work and timber cutting will be carried forward during the winter.

Thanking you for the promptness with which every suggestion was approved looking to increasing and maintaining the convenience and comfort of the soldiers through any assistance that the park force could give, I have the honor to remain,

Very respectfully, your obedient servant,

H. V. BOYNTON,
Chairman Park Commission.

The SECRETARY OF WAR,
Washington, D. C.

WAR DEPARTMENT, SHILOH BATTLEFIELD COMMISSION,
Pittsburg Landing, Tenn., October 31, 1898.

SIR: The Shiloh Battlefield Commission submits this summary of its annual report:

Since the last report the examination of the field of Shiloh and the study of the reports for locating camps, battle lines, and roads has progressed, and the commission is now at work on the battle of the second day.

The clearing of the underbrush on the field is being rapidly done, and the expenditure in this respect is shown below.

A force consisting of three gangs of laborers, each under a foreman, is at work building roads and is now on the main Pittsburg Landing and Corinth road, the road being built having been ceded to us by both the State and county. Application has been made to the county court for the cession of other roads that are intended to be put in condition. The roads are to be covered with gravel and very little grading will be done, the contour of the land being kept nearly as possible.

During the year a commission authorized by the legislature of Illinois, consisting of survivors engaged in the battle of Shiloh, were with us at Shiloh and confirmed the lines and camps as we had them plotted upon the maps. The legislature of Ohio has authorized, and the governor has appointed, a similar commission, and we meet them at Pittsburg Landing on November 18, 1898. Other States that had troops at Shiloh have been asked to appoint similar commissions.

Since the last report the titles to the following lands have been perfected and the land paid for:

	Acres.
J. W. Sowell.....	37.54
S. M. Rogers.....	69.81
J. J. Fraley.....	212.97
G. H. Hurley	43.50
D. H. Cantrell.....	36.28
W. A. Rowsey	89.65
Total	489.75

The amount of expenditures since the last report, from October 1, 1897, to November 1, 1898, is as follows:

Salaries.....	\$13,000.00
Traveling expenses	251.86
Office expenses	1,437.94

Land and conveyancing.....	\$5,689.30
Topography and maps	6,617.24
Engineering superintendence.....	320.00
Buildings and quarters	242.54
Clearing land.....	809.59
Roads and bridges.....	1,279.46
Monuments and markers	54.42
Watchmen and guards	653.33
Total.....	30,355.88

The appropriation for the present year was \$55,000, and one of \$75,000 is asked for the fiscal year commencing July 1, 1899. The balance now on hand, \$87,737.24, will continue the work in progress and pay for the land contracted for to the end of the present year.

Very respectfully, your obedient servant,

CORNELIUS CADLE, *Chairman.*

The SECRETARY OF WAR.

Inviting attention to these interesting reports, special attention is called to the report of the Chickamauga and Chattanooga National Park Commission, which contains a statement as to the conditions at the park during the period it was occupied by the troops.

The marking of the Antietam battlefield is finished. No report is therefore submitted for this park.

R. A. ALGER,
Secretary of War.

APPENDIX.

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1898.

Repairs to water pipes and fire plugs.....	2,531.96	2,500.00	5,031.96	2,474.67	2,531.96	265.32
Telegraph to connect the Capitol with the departments, etc.....	43	1,500.00	1,500.43	1,490.92	43	86.08
Purchase and repair of building where Abraham Lincoln died.....	827.00	1,500.00	827.00	827.00	827.00	827.00
Care and maintenance of Washington Monument.....	35.53	11,520.00	11,555.53	11,292.18	35.53	297.82
Steam tug, harbor of New York.....	912.50	50,000.00	912.50	56,116.45	912.50	2,888.55
Prevention of deposits, harbor of New York.....	4,147.63	100.00	68,147.63	69.93	4,147.63	7.10
Transportation of reports and maps to foreign countries.....	7.10	19,000.00	20,562.41	19,999.98	7.10	1,583.41
Support and medical treatment of destitute patients.....	1,583.41	18,000.00	19,000.00	19,000.00	7.04	159.10
Maintenance of Gardal Hospital.....	159.10	3,327.80	3,327.80	3,327.80	1,432.51	297,210.50
Branch printing office, War Department.....	293,882.70	1,432.51	63,500.00	6,000.90	1,432.51	57,489.10
Increasing the water supply of Washington, D. C.....	1,432.51	2,000.00	2,000.00	1,474.52	2,000.00	535.48
Improving the receiving reservoir, District of Columbia.....	63,500.00	2,000.00	2,000.00	1,572.31	2,000.00	437.69
Repairs to Aqueduct Bridge, District of Columbia.....	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	57,489.10
Repairs to bridges across Eastern Branch of Potomac River at Washington.....	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	57,489.10
Maintenance of bridge, District of Columbia.....	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	57,489.10
Bridges, District of Columbia.....	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	57,489.10
Total buildings and grounds in and around Washington.....	381,572.16	209,851.00	594,750.96	311,407.85	17,269.19	366,073.92
Total salaries, contingencies, etc.....	110,980.21	1,505,956.00	1,616,936.21	1,474,035.40	61,087.26	81,843.55
Total erection of monuments, etc.....	182,966.48	5,985.00	188,951.48	117,435.00	21	71,490.97
Total, buildings and grounds in and around Washington.....	381,572.16	209,851.00	594,750.96	211,407.85	17,269.19	366,073.92
Total salaries, contingencies, monuments, etc.....	675,518.80	1,731,742.00	2,400,589.35	1,802,878.25	78,328.66	519,384.44
Repayments in excess of payments.....				3,328.55		
Actual expenditures.....				1,799,549.70		
MILITARY ESTABLISHMENT.						
Expenses of Commanding General's Office.....	137.29	1,750.00	1,887.29	1,750.00	137.29	460.21
Contingencies military information division, Adjutant-General's Office.....	394.68	8,640.00	4,034.68	8,674.47	463.86	5,803.59
Contingencies headquarters of military departments.....	758.86	8,000.00	8,758.86	2,669.48	12,344.54	189,217.19
Contingencies of the Army.....	20,545.24	135,000.00	155,545.24	137,397.11	188.76	18,939.93
Signal Service of the Army.....	520.07	234,000.00	234,520.07	35,114.12	81,821.55	1,020,212.91
Mileage to officers traveling without troops.....	45,484.66	140,000.00	188,484.66	137,728.18	152,982.39	2,669,938.22
Pay, etc., of the Army.....	163,731.47	21,585,376.83	21,749,108.40	20,575,913.10	2,604,132.86	874,750.69
Salaries of the Army.....	398,543.78	9,898,792.88	9,788,336.66	5,922,441.36	195,987.08	454,649.59
Regular supplies, Quartermaster's Department.....	982,475.71	8,001,059.43	3,933,533.14	2,703,871.32	45,806.85	700,710.86
Incidental expenses, Quartermaster's Department.....	99,463.11	1,350,725.42	1,450,188.53	824,828.20	9,523.79	431,991.26
Barracks and quarters.....	204,298.25	1,050,044.00	1,256,343.25	7,644,416.27	293,557.43	1,286,137.85
Transportation of the Army and its supplies.....	820,689.26	8,403,422.39	9,224,111.65	59,810.61	558.60	342,785.26
Horses for cavalry and artillery.....	548.60	1,680,060.00	1,680,618.60	1,287,274.74	356.18	17,860.24
Construction and repair of hospitals.....	417.43	75,000.00	75,417.43	57,701.01	8.18	49.87
Quarters for hospital stewards.....	8.18	7,000.00	7,008.18	6,950.13	768.40	809.39
Shooting galleries and ranges.....	794.10	10,000.00	10,794.10	9,716.81	8.20	13.00
Purchase of land for target ranges, Fort McPherson, Ga.....	8.20		13.00		23,657.89	5,838,012.49
Land for rifle range near Madison Barracks, N. Y.....	13.00		13.00		5,485,742.69	433.65
Clothing and camp and garrison equipage.....	297,413.07	11,050,000.00	11,347,413.07	5,485,742.69	18.07	18.07
Hospital, Fort Meade, S. Dak.....	423.65		423.65			
Army and Navy Hospital, Hot Springs, Ark.....	18.07		18.07			

Repairs to water pipes and fire plugs.....	2,531.96	2,474.67	2,531.96	265.33
Telegraph to connect the Capital with the departments, etc.....	1,500.00	1,496.92	1,496.92	85.08
Purchase and repair of building where Abraham Lincoln died.....	827.00			827.00
Care and maintenance of Washington Monument.....	11,558.53	11,202.18	85.35	227.89
Steam tug, harbor of New York.....	912.50		912.50	
Prevention of deposits, harbor of New York.....	63,147.63	56,116.45	4,147.63	2,883.55
Transportation of reports and maps to foreign countries.....	100.00	96.93	7.10	0.77
Support and medical treatment of destitute patients.....	19,000.00	18,996.96	7.10	1,583.41
Maintenance of Garfield Hospital.....	19,000.00	19,000.00	.04	
Branch printing office, War Department.....	159.10			159.10
Increasing the water supply of Washington, D. C.....	293,892.70	297,210.50		297,210.50
Improving the receiving reservoir, District of Columbia.....	1,432.51	1,432.51	1,432.51	
Repairs to Aqueduct Bridge, District of Columbia.....	63,500.00	63,500.00		57,499.10
Estimate for bridge across Eastern Branch of Potomac River at Massachusetts avenue, District of Columbia.....	2,000.00	6,000.90		525.48
Bridges, District of Columbia.....		1,474.52		457.69
Total buildings and grounds in and around Washington.....	381,572.16	311,407.85	17,269.19	366,073.92
Total salaries, contingencies, etc.....	110,980.21	1,474,035.40	61,057.26	81,843.55
Total erection of monuments, etc.....	182,966.48	117,435.50	21	71,466.97
Total buildings and grounds in and around Washington.....	381,572.16	211,407.85	17,269.19	366,073.92
Total salaries, contingencies, monuments, etc.....	675,518.90	1,802,878.25	78,326.06	519,384.44
Repayments in excess of payments.....		3,328.55		
Actual expenditures.....		1,796,548.70		
MILITARY ESTABLISHMENT.				
Expenses of Commanding General's Office.....	137.29	1,750.00	137.29	460.21
Contingencies military information division, Adjutant-General's Office.....	394.68	8,674.47		628.59
Contingencies headquarters of military departments.....	758.86	2,666.41	483.86	5,803.59
Contingencies of the Army.....	20,545.24	187,397.11	12,844.54	199,217.19
Signal Service of the Army.....	520.07	35,114.12	188.76	18,839.83
Mileage to officers traveling without troops.....	43,484.66	137,728.18	81,821.55	152,962.39
Pay, etc., of the Army.....	163,731.47	20,575,913.10	152,962.39	1,020,212.91
Subsistence of the Army.....	398,543.78	9,922,431.80	196,867.08	3,699,838.22
Regular supplies, Quartermaster's Department.....	852,473.71	2,694,132.86	454,649.59	874,750.69
Incidental expenses, Quartermaster's Department.....	99,463.11	703,671.32	45,806.85	700,710.86
Baracks and quarters.....	206,299.25	1,050,044.00	9,523.79	421,991.26
Transportation of the Army and its supplies.....	820,689.26	8,403,422.39	203,557.43	1,289,137.96
Horses for cavalry and artillery.....	548.60	59,810.61	558.60	842,785.26
Transportation of the Army and its supplies, Pacific railroads.....	417.41	1,287,274.74	356.18	17,860.24
Quarters for hospital stewards.....	8.18	6,701.01	8.18	49.87
Construction and repair of hospitals.....	794.10	7,008.18	768.40	809.39
Shooting galleries and ranges.....	2.20	10,794.10	3.20	
Purchase of land for target ranges, Fort M'Pherson, Ga.....	13.00	13.00	13.00	
Land for rifle range near Madison Barracks, N. Y.....	287,413.07	11,347,413.07	23,657.89	5,838,012.49
Clothing and camp and garrison equipage.....	423.65	423.65		423.65
Hospital, Fort Meade, S. Dak.....	13.07			18.07
Army and Navy Hospital, Hot Springs, Ark.....		5,485,742.69		

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
MILITARY ESTABLISHMENT—continued.							
Medical and Hospital Department.....	\$81,759.60	\$235,200.00		\$416,959.60	\$229,791.86	\$62,294.96	\$24,872.78
Army Medical Museum.....		5,000.00		5,000.00	5,000.00		
Library, Surgeon-General's Office.....	11.10	10,000.00		10,011.10	10,000.00	11.10	
Engineer depot at Willeto Point, N. Y.....	2,959.85	10,000.00		12,959.85	9,989.80	28.64	781,617.25
Ordnance stores, etc.....	395.86	1,851,054.69		1,851,450.55	1,069,728.93	106.37	96,114.47
Ordnance service.....	81.86	205,000.00		205,081.86	118,985.53	81.86	108,103.31
Ordnance material, proceeds of sales.....	130,163.67			130,163.67	22,060.36		50,434.91
Manufacture of arms.....	97,682.71	548,000.00		645,682.71	595,247.80		18,185.27
Pay of Military Academy.....	17,089.68	806,138.66		823,228.34	289,486.00		5.50
Current and ordinary expenses, Military Academy.....	8,384.71	73,502.50		81,887.21	81,881.50	.21	
Miscellaneous items and incidental expenses, Military Academy.....	894.00	19,395.00		20,289.00	20,289.00		
United States service schools.....		8,500.00		8,500.00	8,500.00		25,000.00
Equipment of engineer troops, Jan. 1, 1899.....		50,000.00		50,000.00	25,000.00		
Expeditionary force to Cuba.....		500,034.00		500,034.00	500,034.00		
Expenses of recruiting, certified claims.....		55.10		55.10	55.10		
National defense (war).....		7,034,112.80		7,034,112.80	7,034,112.80		
Total military establishment.....	3,831,113.22	68,985,673.91		72,316,787.13	55,520,884.07	1,800,928.29	15,494,974.77
PUBLIC WORKS.							
Buildings and grounds, Military Academy.							
Buildings and grounds, Military Academy.....	51,770.00	78,627.00		130,397.00	85,989.74	1,080.26	43,627.00
New Gymnasium, Military Academy.....	11.37			11.37			11.37
Memorial Hall, West Point, N. Y.....	106,096.23			106,096.23	85,000.00		21,096.23
Total buildings and grounds, Military Academy.....	157,877.60	78,627.00		236,504.60	170,989.74	1,080.26	64,734.60
Arsenals.							
Rock Island Bridge, Rock Island, Ill.....		12,250.00		12,250.00	12,250.00		
Rock Island Arsenal, Rock Island, Ill.....	28,150.00	20,000.00		48,150.00	48,150.00		
Benicia Arsenal, Benicia, Cal.....	925.00	400.00		1,325.00	400.00		925.00
Frankford Arsenal, Philadelphia, Pa.....		2,310.00		2,310.00	2,310.00		
Springfield Arsenal, Springfield, Mass.....	1,146.92	13,000.00		14,146.92	13,000.00		1,146.92
Watervliet Arsenal, West Troy, N. Y.....	55,470.00	28,000.00		83,470.00	41,877.00		41,803.00
Watertown Arsenal, Watertown, Mass.....	29,694.03	80,900.00		110,598.03	20,517.28		90,078.77
Repairs of arsenals.....		45,000.00		45,288.42	45,283.69		24.73

Powder depot, Dover, N. J.	19,392.92	5,000.00	24,392.92	7,500.00	16,792.92
Proving ground, Sandy Hook, N. J.	86,877.39	48,500.00	107,477.39	52,034.92	55,442.47
Testing machine.		10,000.00	10,000.00	10,000.00	
Total arsenals.	193,953.68	265,360.00	459,313.68	263,092.87	206,220.81
Fortifications.					
Howell counterpoise carriage.	23,045.00		23,045.00	3,840.00	19,705.00
Artesian well, Fortress Monroe, Va.	5,900.00		5,900.00		5,900.00
Armament of fortifications.	6,876,960.44	8,340,394.00	14,725,454.44	4,421,512.88	10,303,941.61
Preservation and repair of fortifications.	101,143.92	100,000.00	201,143.92	88,073.89	113,069.03
Construction of a counterpoise battery.	37,400.00		37,400.00		37,400.00
Board of Ordnance and Fortification.	471,976.15	100,000.00	571,976.15	192,501.61	379,474.54
Board on fortifications or other defenses.	28,470.77		28,470.77		28,470.77
Board on Pacific Coast Gun Factory.	2,500.00		2,500.00		2,500.00
Plans for fortifications.	5,000.00		5,000.00		5,000.00
Torpedoes for harbor defense.	292,749.34	500,000.00	792,749.34	235,628.70	467,120.64
Ammunition for morning and evening gun.	17,028.00	16,000.00	32,028.00	31,067.50	1,960.50
Torpedo howitzers.	16,000.00		16,000.00		16,000.00
Artillery targets.		6,000.00	6,000.00		
Torpedo defense of Manila Harbor, Philippine Islands.		150,000.00	150,000.00		150,000.00
Target range, Jefferson Barracks, Mo.	18,000.00		18,000.00		
Pneumatic dynamite guns.	230,317.80		230,317.80	169.00	230,148.80
Ten-inch pneumatic disappearing gun carriage.	12,802.80		12,802.80		12,802.80
Gatling 8-inch gun.	40,000.00		40,000.00		40,000.00
Emery loading apparatus.	10,000.00		10,000.00		10,000.00
Sea walls and embankments.	108,500.07	55,000.00	163,500.07	88,500.00	75,000.07
Sites for fortifications and seacoast defenses.	686,482.64	300,000.00	986,482.64	822,571.60	163,911.04
Gun and mortar batteries.	4,277,296.03	3,000,000.00	7,277,296.03	3,392,585.29	3,884,700.73
Powder and projectiles, proceeds of sales.	1,818.47		1,818.47		1,818.47
Total fortifications.	12,671,488.43	12,580,394.00	25,251,882.43	8,681,078.42	16,430,804.00
Military posts.					
Wharf at Fortress Monroe, Va.	28,336.61		28,336.61		28,336.61
Sewerage system, Fortress Monroe, Va.	129,815.67	6,787.75	17,593.44	8,726.87	13,866.57
Military posts.	84,000.00	420,000.00	549,815.67	324,329.53	224,092.92
Military post, Bismarck, N. Dak.	40,000.00		40,000.00		40,000.00
Military post, Spokane, Wash.	84,628.67		84,628.67	10,100.50	74,528.17
Military post, Fort Riley, Kans.	46,969.00		46,969.00	46,700.34	108.66
Fort Wayne Military Reservation.	138.05	\$21.99	160.04		160.04
Purchase of buildings at military posts.	9,877.48		9,877.48		9,877.48
Military storehouse, Omaha, Neb.	11,019.13		11,019.13		11,019.13
Transfer of school site, Fort McClary Military Reservation, Me.	150.35		150.35		150.35
Gettysburg National Park.	222.72		50,222.72	50,222.72	
Payment to Gettysburg Battlefield Memorial Association.	39.54		39.54		39.54
Shiloh National Military Park.	11,368.98	60,000.00	71,368.98	31,246.12	40,122.86
Improvement of Yellowstone National Park.		30,000.78	30,981.98	20,981.98	10,000.00
Chickamauga and Chattanooga National Park.	70,877.87	18,000.00	88,877.87	85,125.27	3,752.60

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
PUBLIC WORKS—continued.							
Military posts—Continued.							
Dedication of the Chickamauga and Chattanooga National Park.							
Military Road, Fort Washakie, Wyo.		\$45.00		\$45.00	\$45.00		\$5,000.00
		10,000.00		10,000.00	5,000.00		
Total military posts			21.99	1,089,102.78	586,538.23	22,389.83	430,174.62
Repayments in excess of payments	\$444,247.26	594,833.53			21.99		
Actual expenditures					586,516.24		
Harbors and rivers.							
Improving Carvers Harbor at Vinal Haven, Me.	10,000.00			10,000.00	10,000.00		
Improving harbor at—							
Belfast, Me.	8,000.00			8,000.00	7,261.45		738.55
Camden, Me.	313.05			313.05			313.05
Portland, Me.	388,000.00			388,000.00	58,000.22		800,999.78
Rockland, Me.	874,500.00			874,500.00	83,000.00		841,500.00
Sullivan Falls, Me.	5,000.00			5,000.00	5,000.00		
Harbor of refuge at Little Harbor, N. H.	10,000.00			10,000.00	10,000.00		
Improving harbor at—							
Portsmouth, N. H.	4,432.39			4,432.39			4,432.39
Burlington, Vt.	9,400.00			9,400.00	9,400.00		
Harbor of refuge, Sandy Bay, Cape Ann, Mass.	175,000.00			175,000.00	110,000.00		65,000.00
Improving							
Canaan, Vt. Channel, Mass.	2,000.00			2,000.00	2,000.00		
Woods Holl Channel, Mass.	19,500.00			19,500.00	19,500.00		
Harbor of refuge at Woods Holl, Mass.	400.08			400.08			400.08
Improving harbor at—							
Boston, Mass.	380,499.51			380,499.51	115,000.00		415,499.51
Chatham, Mass.	5,597.85			5,597.85	23.95		5,573.90
Gloucester, Mass.	14,000.00			14,000.00	14,000.00		
Hyannis, Mass.	4,000.00			4,000.00	6,000.00		
Kingston, Mass.	1,069.91			1,069.91			1,069.91
Lynn, Mass.	20,000.00			20,000.00	20,000.00		
Marblehead, Mass.	20,400.00			20,400.00	20,400.00		
Newburyport, Mass.	18,000.00			18,000.00	14,000.00		2,000.00
Plymouth, Mass.	8,000.00			8,000.00	8,000.00		2,500.00
Provincetown, Mass.	5,500.00			5,500.00	5,500.00		5,500.00
Salisbury, Mass.	6,000.00			6,000.00	6,000.00		
Salmon, Mass.	631.24			631.24			631.24

Vineyard Haven, Mass.....	13,000.00	13,000.00	13,000.00	258.70
Wachusett, Mass.....	4,238.70	4,634.43	4,634.43	4,634.43
Walden, Mass.....	834,992.58	135,000.00	135,000.00	135,000.00
Harbor refuge Point Judith, R. I.....	10,000.00	10,000.00	10,000.00	2,000.00
Improving harbor Great Salt Pond, Block Island, R. I.....	8,000.00	1,000.00	1,000.00	9,447.38
Improving harbor at Block Island, R. I.....	9,447.38	9,447.38	9,447.38	1,996.53
Improving entrance to Point Judith Pond, R. I.....	8,992.53	22,000.00	22,000.00	10,000.00
Breakwater at New Haven, Conn.....	22,000.00	21,000.00	21,000.00	1,000.00
Harbor of refuge, Duck Island Harbor, Conn.....	21,000.00	7,000.00	7,000.00	2,500.00
Improving harbor at Bridgeport, Conn.....	7,000.00	2,500.00	2,500.00	4,750.00
Oss Cobb and Mianus River, Conn.....	4,750.00	9,000.00	9,000.00	1,500.00
Five Mile River, Conn.....	9,000.00	1,500.00	1,500.00	9,000.00
Greenwich, Conn.....	9,000.00	9,000.00	9,000.00	503.10
New Haven, Conn.....	503.10	503.10	503.10	1,092.77
Stonington, Conn.....	1,092.77	458,500.00	458,500.00	225,000.00
Stamford, Conn.....	458,500.00	578,245.70	578,245.70	408,246.08
Wilsons Point, Conn.....	578,245.70	8,800.00	8,800.00	24,699.63
Improving Arthur Kill between Staten Island and New Jersey, N. Y. and N. J.....	8,800.00	24,699.63	24,699.63	99,008.50
Improving channel in Gowanus Bay, N. Y.....	399,008.50	3,100.00	3,100.00	1,050.00
Improving harbor at—	3,100.00	2,050.00	2,050.00	1,284.02
Buffalo, N. Y.....	1,284.02	1,284.02	1,284.02	4,100.14
Charlotte, N. Y.....	6,400.00	6,400.00	6,400.00	220.55
Cape Vincent, N. Y.....	6,400.00	9,750.00	9,750.00	9,750.00
Dunkirk, N. Y.....	9,750.00	70,000.00	70,000.00	45,001.43
Great Sodus Bay, N. Y.....	70,000.00	4,465.35	4,465.35	4,465.35
Greenport, N. Y.....	4,465.35	14,900.00	14,900.00	16,600.00
Little Sodus Bay, N. Y.....	14,900.00	81,199.23	81,199.23	500.00
Little Sodus Harbor, N. Y.....	81,199.23	4,500.00	4,500.00	4,500.00
Mamaroneck, N. Y.....	4,500.00	4,500.00	4,500.00	21.99
Mattituck, N. Y.....	3,850.00	3,850.00	3,850.00	21.99
Improving New York Harbor.....	3,850.00	500.78	500.78	26.03
Improving harbor at—	500.78	8,500.00	8,500.00	238.85
Olcott, N. Y.....	8,500.00	590,500.00	590,500.00	2,500.00
Ogdensburg, N. Y.....	590,500.00	2,500.00	2,500.00	7,996.25
Oswego, N. Y.....	2,500.00	2,415.72	2,415.72	1,715.72
Port Jefferson, N. Y.....	2,415.72	16,236.93	16,236.93	16,236.93
Rondout, N. Y.....	7,690.00	7,690.00	7,690.00	937.61
Sackett's Harbor, N. Y.....	7,690.00	734.08	734.08	734.08
Wilson, N. Y.....	734.08			
Improving—				
Tonawanda Harbor and Niagara River, N. Y.....				
Karitan Bay, N. J.....				
Dennis Creek, N. J.....				
Improving harbor between Philadelphia, Pa., and Camden, N. J.....				
Improving harbor at—				
Keyport, N. J.....				
Erie, Pa.....				
Ice harbor at—				
Marcus Hook, Pa.....				
Reedy Island, Del.....				
Constructing pier in Delaware Bay, near Lewes, Del.....				
Removing obstructions from the harbor at Delaware Breakwater.....				

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
PUBLIC WORKS—continued.							
Harbors and rivers—Continued.							
Improving harbor at Delaware Breakwater, Del.	\$82,500.00			\$82,500.00	\$71,000.00		\$11,500.00
Harbor of refuge, Delaware Bay, Del.	397,334.00			397,334.00	274,000.46		123,333.54
Improving harbor at—							
Wilmington, Del.	24,750.00			24,750.00	24,732.09		17.91
Annapolis, Md.	1,524.58			1,524.58			1,524.58
Baltimore, Md.	290,000.00			290,000.00	255,000.00		5,000.00
Rock Hall, Md.	10,000.00			10,000.00	10,000.00		
Norfolk, Va.	5,000.00			5,000.00	1,500.00		3,500.00
Improving Edenton Bay, N. C.	2,447.41			2,447.41			2,447.41
Improving waterway between—							
Newbern and Beaufort, N. C.	7,085.61			7,085.61	300.00		6,785.61
Beaufort Harbor and New River, N. C.	1,000.00			1,000.00			1,000.00
Improving harbor at Beaufort, N. C.	5,002.32			5,002.32	1,000.00		4,002.32
Improving Whyaw Bay, S. C.	360,000.00			360,000.00	45,000.00		315,000.00
Improving harbor at—							
Charleston, S. C.	180,000.00			180,000.00	60,000.00		120,000.00
Georgetown, S. C.	1,519.29			1,519.29			1,519.29
Improving—							
Outer bar at Brunswick, Ga.	231,722.51			231,722.51	2,905.89		228,816.62
Cumberland Sound, Ga. and Fla.	360,000.00	\$50,000.00		400,000.00	363,720.22		36,279.78
Harbor at Savannah, Ga.	359,249.78			359,249.78	340,001.11		19,248.67
Channel Charlotte Harbor and Peace Creek, Fla.	13,200.00			13,200.00	13,100.00		100.00
Carrabelle Bar and Harbor, Fla.	9,500.00			9,500.00	9,500.00		
Improving harbor at—							
Key West, Fla.	74,500.00			74,500.00	31,500.00		43,000.00
Pensacola, Fla.	213,977.59			213,977.59	64,025.19		149,952.40
St. Augustine, Fla.	6,000.10			6,000.10			6,000.10
Mobile, Ala.	25,000.00			25,000.00			25,000.00
Improving Biloxi Bay, Miss.	617.73			617.73			617.73
Improving harbor at—							
Vicksburg, Miss.	35,000.00			35,000.00			35,000.00
Natches and Vidalia, Miss. and La.	109,000.00			109,000.00	92,500.00		16,500.00
St. Louis, Mo.	31,000.00			31,000.00			31,000.00
New Orleans, La.	50,000.00			50,000.00	5,000.00		45,000.00
Improving channel in West Galveston Bay, Tex.	5,000.00			5,000.00			5,000.00
Improving ship channel in Galveston Bay, Tex.	48,500.00			48,500.00			48,500.00
Improving harbor at—							
Brazos Santiago, Tex.	57,476.00			57,476.00			57,476.00
Galveston, Tex.	555,000.00			555,000.00	370,000.00		185,000.00

Ashtabula, Ohio.....	53,000.00	52,500.00	500.00
Black River, Ohio.....	13,000.00	13,000.00	
Cleveland, Ohio.....	420,000.00	50,000.00	370,000.00
Conneaut, Ohio.....	29,500.00	29,500.00	
Fairport, Ohio.....	80,000.00	2,500.44	27,499.56
Fort Clinton, Ohio.....	12,000.00	10,000.00	2,000.00
Sandusky City, Ohio.....	28,000.00	28,000.00	
Toledo, Ohio.....	127,500.00	120,500.56	6,999.44
Improving Wolf Lake, Ind.....	8,000.00		8,000.00
Improving harbor at—			
Michigan City, Ind.....	98,000.00	5,000.00	93,000.00
Calumet, Ill.....	15,000.00	10,000.00	5,000.00
Chicago, Ill.....	5,000.00	59	4,999.41
Waukegan, Ill.....	14,000.00	13,000.00	1,000.00
Harbor of refuge at—			
Grand Marais, Mich.....	21,000.00	20,020.30	979.70
Portage Lake, Mich.....	22,000.00	11,000.00	11,000.00
Marquette Bay, Mich.....	15,000.00	14,500.00	500.00
Sand Beach, Mich.....	109,000.00	3,892.95	105,107.05
Improving—			
Eagle Harbor, Mich.....	1,007.23	1,007.23	1,007.23
Month and harbor of Cedar River, Mich.....	1,536.03	1,536.03	1,536.03
Improving harbor at—			
Alpena, Mich.....	6,500.00	6,500.00	6,500.00
Black Lake, Mich.....	5,000.00	3,000.00	2,000.00
Charlevoix, Mich.....	20,000.00	7,000.00	13,000.00
Cheboygan, Mich.....	11,996.95	11,996.95	11,496.95
Frankfort, Mich.....	15,000.00	5,000.00	10,000.00
Grand Haven, Mich.....	32,000.00	7,000.40	25,000.00
Ludington, Mich.....	16,000.00	9,000.00	7,000.00
Manistee, Mich.....	12,000.00		12,000.00
Manistique, Mich.....	2,044.95	2,044.95	2,044.95
Marquette, Mich.....	9,000.00	8,016.59	983.41
Monroe, Mich.....	5,000.00	5,000.00	
Muskegon, Mich.....	26,000.00	16,000.00	10,000.00
Ontonagon, Mich.....	9,500.00	3,500.00	6,000.00
Pontiac, Mich.....	5,000.00	5,000.00	5,000.00
Potoskey, Mich.....	2,000.00	500.00	1,500.00
St. Joseph, Mich.....	16,047.20	11,000.00	5,047.20
South Haven, Mich.....	17,000.00	7,000.00	10,000.00
Saugatuck, Mich.....	6,000.00	6,000.00	
White River, Mich.....	5,000.00	5,000.00	5,000.00
Harbor of refuge—			
Milwaukee Bay, Wis.....	173,737.65	148,737.65	25,000.00
At entrance of Surgeon Bay Canal, Wis.....	3,000.00	2,500.00	500.00
Improving harbor at—			
Annapolis, W'a.....	6,500.00	6,500.00	3,000.00
Ashland, W'a.....	17,000.00	15,507.21	1,492.79
Duluth, Minn., and Superior, W'a.....	446,500.00	288,518.70	57,981.30
Green Bay, W'a.....	23,000.00	25,007.44	2,992.56
Kenosha, W'a.....	12,000.00	10,500.00	1,500.00
Kewaunee, W'a.....	20,000.00	20,000.00	

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
PUBLIC WORKS—continued.							
Harbors and rivers—Continued.							
Improving harbor at—Continued.							
Manitowoc, Wis.....	\$39,440.00			\$39,440.00	\$24,441.80		\$4,998.20
Menomonee, Wis.....	2,000.00			2,000.00	500.00		1,500.00
Pensaukee, Wis.....	1,000.00			1,000.00			1,000.00
Port Washington, Wis.....	3,031.75			3,031.75	1,500.00		1,531.75
Racine, Wis.....	8,000.00			8,000.00			
Sheboygan, Wis.....	13,999.75			13,999.75	12,501.03		1,498.72
South Milwaukee, Wis.....	5,000.00			5,000.00	5,000.00		
Ice harbor at Dubuque, Iowa.....	4,503.99			4,503.99			4,503.99
Improving harbor at—							
Memphis, Tenn.....	35,000.00			35,000.00	12,000.00		23,000.00
Agate Bay, Minn.....	40,000.00			40,000.00	28,000.00		12,000.00
Grand Marais, Minn.....	500.00			500.00			500.00
Oakland, Cal.....	223,949.74			223,949.74	23,919.74		203,000.00
San Luis Obispo, Cal.....	39,999.56			39,999.56	39,999.56		
Wilmington, Cal.....	50,000.00			50,000.00	30.13		49,979.87
Improving Humboldt Harbor and Bay, Cal.....	439,994.48			439,994.48	258,984.48		181,000.00
Examination for deep-water harbor at San Pedro and Santa Monica bays, Cal.....	16,661.51		4,158.11	20,719.62			20,719.62
Survey of Pacific coast between Points Duma and Capistrano, Cal.....	3,349.22			3,349.22			3,349.22
Improving entrance to Coos Bay and Harbor, Oreg.....	66,889.97			66,889.97	30,806.49		36,583.48
Improving harbor at Port Orford, Oreg.....	140,853.52			140,853.52			140,853.52
Improving—							
Nehalem Bay, Oreg.....	9,584.92			9,584.92	270.60		9,314.32
Yaquina Bay, Oreg.....	24,993.54			24,993.54	1,500.00		23,493.54
Grays Harbor and Chehalis River, Wash.....	288.63			288.63			288.63
Grays Harbor, Wash.....	868,500.00			868,500.00	18,506.77		849,993.23
Harbor at Olympia, Wash.....	1,000.00			1,000.00	7.40		992.60
Survey, Portland Channel, Alaska.....			49.80	49.80			49.80
Ship channel connecting waters of the Great Lakes between Chicago, Duluth, and Buffalo.....	1,121,804.60			1,121,804.60	295,000.48		826,804.12
Surveys and examinations of waterways between the Great Lakes and Atlantic Ocean.....	150,000.00			150,000.00	150,000.00		
Investigating obstructions to navigation by the water hyacinth.....	5,000.00			5,000.00	2,500.00		2,500.00
Improving—							
Lutèce Channel, Me.....	32,000.00			32,000.00	32,000.00		
Moosabeo Bar at Jonesport, Me.....	12,000.00			12,000.00			
Regaduce River, Me.....	4,975.16			4,975.16			
Georges River, Me.....	10,000.00			10,000.00	10,000.00		

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
PUBLIC WORKS—continued.							
<i>Harbors and rivers—Continued.</i>							
Survey of Delaware River between Philadelphia, Pa., and Camden, N. J.	\$4,465.28			\$4,465.28			\$4,465.28
Improving—							
Allegheny River, Pa.	7,000.00			7,000.00	\$7,000.00		
Delaware River, Pa.	492,510.60			492,510.60	314,000.00		178,509.70
Schuylkill River, Pa.	14,800.00			14,800.00	2,500.29		11,799.71
Monongahela River, Pa.		\$3,612,615.46		3,612,615.46	3,642,615.46		4,000.00
Broad Creek, Del.	6,000.00			6,000.00	1,000.00		4,000.00
Mispellon Creek, Del.	4,350.00			4,350.00	4,350.00		9,000.00
Appoquinimink River, Del.	2,000.00			2,000.00	5,000.00		1,000.00
Smyrna River, Del.	2,000.00			2,000.00	1,000.00		4,458.54
Choptank River, Md.	4,458.54			4,458.54			4,000.00
Chester River, Md.	4,000.00			4,000.00			2,850.00
Nantuxent River, Md.	2,850.00			2,850.00			62,000.00
Nantuxent River, Del. and Md.	382.70			382.70			98,460.97
Potomac River	62,000.00			62,000.00	18,031.45		10,000.00
Susquehanna River, near Havre de Grace, Md.	116,462.42			116,462.42	1,000.00		8,700.00
Warwick River, Md.	10,000.00			10,000.00			25,000.00
Wiscomco River, Md.	2,000.00			2,000.00			14,929.63
Surveys for improvement of Anacostia River, D. C.	8,700.00	2,000.00		2,000.00			2,848.08
Improving waterway from Chincoteague Bay to Indian River Bay, Va., Md., and Del.	25,000.00			25,000.00			2,800.00
Protecting Jamestown Island, Va.	15,000.00			15,000.00	37		11,964.71
Aquia Creek, Va.	3,000.00			3,000.00	3,000.00		4,000.00
Lower Machodoc Creek, Va.	1,499.86			1,499.86	1,499.80		2,308.94
Nandua Creek, Va.	3,000.00			3,000.00	11.92		3,500.00
Ocoquan Creek, Va.	2,300.00			2,300.00	2,298.97		9,800.00
Nemli Creek, Va.	2,300.00			2,300.00			
Urban Creek, Va.	2,800.00			2,800.00			
Appomattox River, Va.	4,580.00			4,580.00	480.00		4,100.00
Elizabeth River, Va.	15,000.00			15,000.00	15,000.00		11,964.71
James River, Va.	57,000.00			57,000.00	45,005.20		4,000.00
Mattaponi River, Va.	4,000.00			4,000.00			4,900.00
Nausemon River, Va.	4,900.00			4,900.00			2,308.94
New River, Va. and W. Va.	2,308.94			2,308.94			3,500.00
Pamunkey River, Va.	3,500.00			3,500.00			9,800.00
Rappahannock River, Va.	9,800.00			9,800.00			

Swanston River, Va.	\$ 984.77				\$ 984.77
Yule River, Va.	17,800.00				17,800.00
Big Sandy River, W. Va. and Ky.	7,800.00				7,800.00
Elk River, W. Va.	3,494.30				3,494.30
Gauley River, W. Va.	3,500.00				3,500.00
Great Kanawha River, W. Va.	539,632.80	\$97.03			539,632.80
Little Kanawha River, W. Va.	1,500.00				1,500.00
Monongahela River, W. Va.	412,000.00				412,000.00
Shenandoah River, W. Va.	16,020.49				16,020.49
Survey of waterways connecting Dismal Swamp Canal, Va., with sounds of North Carolina	400.90				400.90
Improving waterways—					
From Norfolk Harbor, Va., to Albemarle Sound, N. C.	8,800.00				8,800.00
Between New River and Swanboro, N. C.	4,376.27				4,376.27
Improving—					
Ocracoke Inlet, N. C.	15,000.00				15,000.00
Contentutts Creek, N. C.	1,500.00				1,500.00
Fishing Creek, N. C.	8,000.00				8,000.00
Cape Fear River, N. C.	174,019.00				174,019.00
Lockwoods Folly River, N. C.	151.49				151.49
Pasquotank River, N. C.	1,500.00				1,500.00
Pamlico and Tar Rivers, N. C.	5,000.00				5,000.00
New River, N. C.	2,500.00				2,500.00
Roanoke River, N. C.	39,506.76				39,506.76
Trent River, N. C.	1,013.50				1,013.50
Waccamaw River, N. C. and S. C.	2,500.50				2,500.50
Yadkin River, N. C.	4,497.12				4,497.12
Wappoo Cut, S. C.	2,355.53				2,355.53
Congaree River, S. C.	1,500.00				1,500.00
Edisto River, S. C.	282.35				282.35
Great Pee Dee River, S. C.	7,500.00				7,500.00
Little Pee Dee River, S. C.	1,500.00				1,500.00
Salkahatchie River, S. C.	2,159.27				2,159.27
Santee River, S. C.	25,000.00				25,000.00
Wateree River, S. C.	2,500.00				2,500.00
Altamaha River, Ga.	5,000.00				5,000.00
Chattahoochee River, Ga. and Ala.	15,000.00				15,000.00
Cosa River, Ga. and Ala.	75,018.27				75,018.27
Flint River, Ga.	3,500.00				3,500.00
Ocmulgee River, Ga.	3,500.00				3,500.00
Oconee River, Ga.	4,000.00				4,000.00
Savannah River, Ga.	11,000.00				11,000.00
Surveys, Biscayne Bay and Palm Beach, Fla.	10.75				10.75
Waterway between Savannah, Ga., and Fernandina, Fla.	8,000.00				8,000.00
Improving—					
La Grange Bayou, Fla.	4,839.20				4,839.20
Sarasota Bay, Fla.	2,500.00				2,500.00
Choctawhatchee River, Fla. and Ala.	1,000.00				1,000.00
Caloosahatchee River, Fla.	1,000.00				1,000.00
Indian River, Fla.	7,500.00				7,500.00
Manatee River, Fla.	3,000.00				3,000.00

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

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PUBLIC WORKS—continued.							
Harbors and rivers—Continued.							
Improving—Continued.							
Ocklawaha River, Fla.	\$3,000.00			\$3,000.00	\$3,000.00		\$50,804.29
St. Johns River, Fla.	140,804.29			140,804.29	90,000.00		
Swanose River, Fla.	2,998.70			2,998.70	2,998.70		785.12
Withlacoochee River, Fla.	785.12			785.12			
Alabama River, Ala.	6,960.26			6,960.26	6,960.26		
Black Warrior River, Ala.	17,500.00			17,500.00	17,500.00		
Warrior and Tombigbee Rivers, Ala. and Miss.	211,000.00			211,000.00	145,992.50		65,000.50
Maintaining channel in Mobile Bay, Ala.		\$25,000.00		25,000.00	25,000.00		
Improving—							
Big Sandlower River, Miss.	5,000.00			5,000.00	5,000.00		
Notube River, Miss.	3,000.00			3,000.00			3,000.00
Pearl River, Miss.	4,900.00			4,900.00	4,700.00		200.00
Yasco River, Miss.	514,992.69			514,992.69	18,992.69		496,000.00
Mississippi River	3,306,528.47	625,000.00		3,931,528.47	2,444,801.27		1,486,727.20
Mississippi River, from Minneapolis to Des Moines Rapids, Minn., Iowa, Mo., Ill., and Wis.	3,000.00			3,000.00	3,000.00		
Mississippi River, from mouth of Ohio River to Minneapolis, Minn.	1,790,500.00	525,000.00		2,315,500.00	1,725,866.56		589,633.44
Mississippi River, between mouths of Ohio and Illinois Rivers, Ill., and Mo.	31,100.00			31,100.00	22,500.00		8,600.00
Closing crevasses in Pass a Loure, Mississippi River	248,000.00			248,000.00	88,000.00		160,000.00
Operating snag and dredge boats on Upper Mississippi River		25,000.00		25,000.00	25,000.00		
Gauging the waters of the Lower Mississippi and its tributaries	145.83	6,000.00		6,145.83	6,993.39		147.44
Reservoirs at head waters of Mississippi River	67,423.58			67,423.58	6,100.65		61,297.93
Removing obstructions in Mississippi River	81,604.94	104,578.36		186,083.30	90,000.00	\$19,501.94	26,578.36
Examining and surveys at South Pass, Mississippi River	1,128.06	11,000.00		12,128.06	10,110.50	1,128.06	889.50
Constructing jetties and other works at South Pass, Mississippi River		100,000.00		100,000.00	100,000.00		
Preventing break in Mississippi River at Bench Ridge, Ill.	100,000.00			100,000.00	50,000.00		50,000.00
Improving—							
Bogue Chitto, La.	2,000.00			2,000.00	2,000.00		
Bayou Beut, La.	8,000.00			8,000.00			8,000.00
Bayou Courtableau, La.	2,500.00			2,500.00			2,500.00
Bayou Lafourche, La.	59,700.00			59,700.00	17,500.00		42,200.00
Bayou Plaquemine, La.	422,407.77			422,407.77	46,900.00		375,507.77
Bayou Vermillion, La.	1,000.00			1,000.00			1,000.00
Connecting Bayou Teche with Grand Lake at Charenton, La.	22,100.05			22,100.05			22,100.05
Improving—							
Amite River, La.	2,502.50			2,502.50			2,502.50
Atchafalaya and Red Rivers, La.	80,500.00			80,500.00	15,000.00		65,500.00

Caloauden River and Pass, La.....	12,764.00			12,764.00	1,000.00		11,764.00
Mormontau River, La.....	10,000.00			10,000.00	10,000.00		
Tensas River, La.....	4,999.30			4,999.30	8,000.00		1,999.30
Tchebucte River, La.....	1,000.00			1,000.00			
Red River, La. and Ark.....	97,400.00			97,400.00	24,395.00		73,005.00
Sabine Pass, Tex.....	431,500.00			431,500.00	309,330.00		132,170.00
Aransas Pass and Bay, Tex.....	40,867.35			40,867.35			40,867.35
Passo Cavallo, Tex.....	83,368.78			83,368.78			83,368.78
Buffalo Bayou, Tex.....	18,500.00			18,500.00			18,500.00
Cypress Bayou, Tex. and La.....	15,000.00			15,000.00	4,000.00		11,000.00
Examination of Improvements—							
Mouth of Brazos River, Tex.....	1,000.00		\$294.77	1,294.77			1,294.77
At Aransas Pass, Tex.....	5,000.00			5,000.00	2,048.07		1,951.93
Improving—							
Mouth of Brazos River, Tex.....	16,651.57			16,651.57			16,651.57
Brazos River, Tex.....	5,000.00			5,000.00	2,500.00		2,500.00
Sabine River, Tex.....	2,000.00			2,000.00			2,000.00
Trinity River, Tex.....	7,800.00			7,800.00	200.00		7,600.00
Decide boat for harbor at Sabine Pass, Tex. and operating the same.							
Removing obstructions in Arkansas River, Ark. and Kans.							
Improving—							
Arkansas River, Ark.....	16,995.54			16,995.54	9,003.50		129,100.00
Black River, Ark. and Mo.....	49,319.16			49,319.16	41,787.30		7,531.86
Current River, Ark. and Mo.....	5,000.00			5,000.00	1,000.00		1,000.00
Fourche Le Foy, Ark.....	1,693.32			1,693.32			1,693.32
Ouachita River, Ark. and La.....	832.75			832.75			832.75
Red River above Fulton, Ark.....	50,000.00			50,000.00	28,015.09		21,984.91
St. Francis River, Ark.....	8,000.00			8,000.00	2,000.00		2,000.00
White River, Ark.....	2,905.38			2,905.38	15,863.90		9,600.00
Havassaw River, Tenn.....	26,463.98			26,463.98			26,463.98
Clinch River, Tenn.....	4,000.00		72.98	4,072.98			4,000.00
Cumberland River above Nashville, Tenn.....	408,000.00			408,000.00	171,000.00		237,000.00
Cumberland River below Nashville, Tenn.....	83,000.00			83,000.00	57,000.00		26,000.00
French Broad River, Tenn.....	5,000.00			5,000.00			
Forked Deer River, Tenn.....	5,000.00			5,000.00			
Ochlocknee River, Tenn.....	5,000.00			5,000.00	2,500.00		2,500.00
Tennessee River above Chattanooga, Tenn.....	22,000.00			22,000.00	16,000.00		2,000.00
Tennessee River below Chattanooga, Tenn., Ala., and Ky.....	241,209.28			241,209.28	173,094.58		2,500.00
Falls of the Ohio River at Louisville, Ky.....	357,500.00			357,500.00	132,500.00		119,204.71
Greenucky River, Ky.....	85,188.12			85,188.12	55,000.00		225,000.00
Kentucky River, Ky.....	260,000.00			260,000.00	59,535.01		20,183.12
Rough River, Ky.....	8,000.00			8,000.00			200,464.99
Tonguewater River, Ky.....	8,410.00			8,410.00			8,000.00
Ohio River below Pittsburgh, Pa.....	832,000.00			832,000.00	86,968.85		410.00
Survey of—							
The Ohio River below Pittsburgh, Pa.....	9,565.92			9,565.92			745,001.15
Canal from Lake Erie to Ohio River.....		199.47		199.47			9,565.92
Improving—							
Ohio River.....	264,390.11			264,390.11	97,798.27		166,593.84
Muskingum River, Ohio.....	5,000.00			5,000.00			5,000.00
Operating snag boats on Ohio River.....	5,102.31			5,102.31	19,648.40		30,751.51
Examination of Portage Lake and Lake Superior ship canals.....	2,310.92			2,310.92		102.31	2,413.23

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

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PUBLIC WORKS—continued.							
Harbors and rivers—Continued.							
Improving—							
Waterway from Keweenaw Bay to Lake Superior, Mich.	\$385,000.00			\$385,000.00	\$35,018.24		\$299,981.76
Hay Lake Channel, Sault Ste. Marie River, Mich.	250,000.00			250,000.00	106,000.00		115,000.00
St. Clair Flats Canal, Mich.	4,720.71			4,720.71	2,500.00		2,220.71
Belle River, Mich.	2,000.00			2,000.00	2,000.00		
Black River, Mich.	8,000.00			8,000.00	8,000.00		
Clinton River, Mich.	12,000.00			12,000.00	7,000.00		5,000.00
Detroit River, Mich.	50,000.00			50,000.00	50,000.00		
Grand River, Mich.	40,000.00			40,000.00	16,000.00		24,000.00
Kalamazoo River, Mich.	4,000.00			4,000.00			4,000.00
Menominee River, Mich. and Wis.	8,000.00			8,000.00	8,000.00		
Rouge River, Mich.	10,000.00			10,000.00	1,000.00		9,000.00
Saginaw River, Mich.	88,000.00			88,000.00	500.00		87,500.00
Schoharie River, Mich.	5,000.00			5,000.00			5,000.00
St. Mary's River, Mich.	1,191,060.41			1,191,060.41	146,000.20		1,045,060.21
Thunder Bay River, Mich.	2,000.00			2,000.00			2,000.00
Turning Basin Rouge, Mich.	5,000.00			5,000.00			5,000.00
Investigating property rights of United States in improvement of Fox and Wisconsin Rivers							
Sturgeon Bay and Lake Michigan Ship Canal, Wis.	2,000.00			2,000.00	2,000.00		
Improving—							
Chippewa River, Wis.	14,107.15			14,107.15	14,000.00		107.15
Sst. Croix River, Wis. and Minn.	4,999.36			4,999.36	3,000.00		1,999.36
Fox River, Wis.	7,000.50			7,000.50	5,000.12		2,000.38
Red River of the North, Minn. and Dak.	85,504.76			85,504.76	26,506.04		9,998.72
Illinois and Mississippi Canal.	6,350.29			6,350.29	6,544.86		715.43
Improving—							
Chicago River, Ill.	896,000.50			896,000.50	621,000.48		274,000.02
Calumet River, Ill.	122,000.00			122,000.00	86,001.59		37,998.41
Illinois River, Ill.	23,000.00			23,000.00	16,500.00		6,500.00
Wabash River, Ind. and Ill.	15,000.00			15,000.00	13,000.00		2,000.00
Ozark River, Mo. and Kans.	7,500.00			7,500.00	7,500.00		
Missouri River.	49,774.13			49,774.13	49,774.13		
Missouri River.	147.92			147.92	29.31		118.61
Missouri River, from mouth to Sioux City, Iowa.	356,213.00			356,213.00	346,197.07		10,015.93
Missouri River, from Stubbs Ferry, Mont., to Sioux City, Iowa.	157,477.01			157,477.01	109,134.05		48,342.96
Examination of Missouri River from Three Forks to Canyon Ferry, Mont.				754.01			754.01
Improving—							
Flathead River, Mont.	8,800.00			8,800.00	3,500.00		5,300.00

Yellowstone River, Mont. and Dak.	13, 210.53			13, 210.53	1, 490.11		11, 720.41
Nepes River, Cal.	4, 000.00			4, 000.00			4, 000.00
Sacramento and Feather Rivers, Cal.	317, 183.84			317, 183.84			299, 519.55
San Joaquin River, Cal.	65, 730.30			65, 730.30	32, 014.28		43, 716.92
Examination of obstructions in Columbia River, Oreg.	520.51			520.51			520.51
Examination and survey of Columbia River, Oreg.	8, 160.49			8, 160.49			3, 160.49
Improving—							
Mouth of Columbia River, Oreg. and Wash.	54, 146.02			54, 146.02	7, 000.28		47, 145.74
Columbia and Lower Willamette Rivers below Portland, Oreg.	72, 342.10			72, 342.10	27, 470.00		44, 872.10
Columbia River at Three Mile Rapids, Oreg. and Wash.	236, 763.05			236, 763.05	2, 500.00		234, 263.05
Gauging waters of Columbia River, Oreg.	250.00			250.00			250.00
Improving—							
Ocoee River, Oreg.	4, 000.00			4, 000.00	2, 500.00		500.00
Coquille River, Oreg.	23, 000.00			23, 000.00			
Stuquale River, Oreg.	13, 750.00			13, 750.00	13, 000.00		750.00
Upper Columbia and Snake Rivers, Oreg. and Wash.	2, 581.32			2, 581.32	2, 125.52		455.80
Willamette and Yamhill Rivers, Oreg.	178, 491.50			178, 491.50	46, 576.49		131, 915.01
Willamette River above Portland, Oreg.							
Waterway connecting Puget Sound with Lakes Union and Wash.	34.37			34.37			34.37
Ingot.	169, 999.00			169, 999.00			169, 999.00
Puget Sound, Wash.	60, 499.25			60, 499.25	16, 490.25		44, 000.00
Sachumish Slough, Wash.	3, 000.00			3, 000.00			
Columbia River from Rock Island Rapids to Priest Rapids, Wash.	66, 500.00			66, 500.00	25, 000.00		41, 500.00
Cowlitz River, Wash.	15.65			15.65	15.65		
Cowlitz River and Harbor, Wash.	1, 200.00			1, 200.00			
Chehalis River, Wash.	2, 650.00			2, 650.00	1, 200.00		
Clearwater River, Wash.	10.60			10.60			2, 650.00
Upper Snake River, Idaho.	17, 664.98			17, 664.98	13, 653.09		4, 011.89
Kootenai River, Idaho.	2, 800.00			2, 800.00	6, 600.00		1, 200.00
Operating and care of canals and other works of navigation.	4, 500.00			4, 500.00			4, 500.00
Buoys and lantern vessels or craft obstructing or endangering navigation.	718, 422.50			718, 422.50			
Examinations, surveys, and contingencies of rivers and harbors.	49, 331.76			49, 331.76	49, 331.76		
Total harbors and rivers.	139, 727.98			139, 727.98	67, 976.83		71, 751.16
Repayments in excess of payments.	6, 072, 153.20			6, 072, 153.20	21, 101, 613.15		17, 746, 992.82
Actual expenditures	32, 791, 627.88			32, 791, 627.88	5, 559.70		
MISCELLANEOUS OBJECTS.					21, 094, 053.45		
Signal Service.							
Road to the signal station on Pikes Peak, Colo.	10, 000.00			10, 000.00			10, 000.00
Military telegraph line from Fort Ringgold, Tex. to Fort McIntosh, Tex.	254.89			254.89	254.89		
Military telegraph line El Paso, Tex., and New Fort Bliss, Tex.	67.63			67.63			67.63
Total Signal Service.	10, 322.52			10, 322.52	254.89		10, 000.00

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
MISCELLANEOUS OBJECTS—continued.							
<i>National cemeteries.</i>							
National cemeteries.....	\$13, 108.38	\$100, 000.00	.....	\$118, 108.38	\$100, 388.16	\$1, 387.96	\$11, 324.26
National cemetery, Fort Smith, Ark.....	.....	15, 000.00	.....	15, 000.00	11, 110.20	.....	3, 889.80
Pay of superintendents of national cemeteries.....	153.32	61, 880.00	.....	62, 033.32	61, 776.80	227.50	29.02
Repairing roads to national cemeteries.....	280.89	8, 000.00	.....	8, 280.89	4, 158.12	2, 290.80	1, 831.97
Road to the national cemetery, Presidio of San Francisco, Cal.....	.....	5, 025.00	.....	5, 025.00	4, 920.08	100.29	4.88
Road to the national cemetery at Hampton, Va.....	2, 000.00	.....	.....	2, 000.00	.....	2, 000.00	.....
Road to the national cemetery, Illinois.....	.....	6, 000.00	.....	6, 000.00	10, 000.00	.....	6, 000.00
Road to the national cemetery, Pensacola, Fla.....	.....	10, 000.00	.....	10, 000.00	2, 230.60	.....	469.40
Road to national cemetery, Springfield, Mo.....	1, 469.62	2, 700.00	.....	2, 700.00	24, 212.99	424.96	1, 831.67
Headstones for graves of soldiers.....	2, 366.50	25, 000.00	.....	26, 466.50	1, 500.00	1, 866.50	1, 500.00
Burial of indigent soldiers.....	.....	2, 000.00	.....	4, 366.50	.....	.....	.....
Total national cemeteries.....	19, 378.71	235, 405.00	.....	254, 983.71	220, 294.90	7, 798.01	26, 990.80
<i>Artificial limbs and appliances.</i>							
Artificial limbs.....	9, 534.86	183, 171.73	.....	192, 706.59	173, 619.16	19	19, 090.24
Appliances for disabled soldiers.....	900.00	2, 000.00	.....	2, 900.00	1, 228.65	671.35	1, 000.00
Trusses for disabled soldiers.....	.....	10, 000.00	.....	10, 000.00	.....	.....	.....
Total artificial limbs and appliances.....	10, 434.86	195, 171.73	.....	205, 606.59	184, 844.81	671.54	20, 090.24
<i>Civil surveys.</i>							
Survey of northern and northwestern lakes.....	8, 399.99	27, 000.00	.....	35, 399.99	19, 775.53	4.84	15, 619.62
Survey of military defenses.....	.....	.....	\$172.92	172.92	.....	172.92	.....
Total civil surveys.....	8, 399.99	27, 000.00	172.92	35, 572.91	19, 775.53	177.76	15, 619.63
Repayments in excess of payments.....	.....	.....	.....	.....	172.92	.....	.....
Actual expenditures.....	.....	.....	.....	.....	19, 602.61	.....	.....
<i>Miscellaneous.</i>							
Arming and equipping the militia.....	419, 846.18	400, 000.00	.....	819, 846.18	634, 828.34	.....	185, 017.84
Seacoast batteries for instruction of militia.....	758.82	.....	.....	758.82	.....	.....	758.82
Post-office, Fortress Monroe, Va.....	15, 000.00	.....	.....	15, 000.00	14, 980.97	.....	19.03
Publication of Official Records of War of the Rebellion.....	64, 171.26	115, 000.00	.....	179, 171.26	153, 124.71	1, 052.37	24, 994.18
Expenses of military convicts.....	2, 687.23	.....	.....	2, 687.23	84.65	.....	2, 370.03
State or Territorial homes for disabled soldiers and sailors.....	170, 332.92	880, 000.00	.....	1, 050, 332.92	913, 750.00	21, 582.92	125, 000.00

Support of National Home for Disabled Volunteer Soldiers, National Home for disabled volunteer soldiers	224,797.16	176.59	2,644,160.20	176.59	2,085,555.77	223,889.72	236,614.71
Support of Soldiers' Home	2,740,450.58	296,386.57	2,431,863.04	3,037,088.59	818,329.04		2,718,760.85
Roan River Indian war							
Arms and quartermaster stores for State of Wyoming	5,666.64		5,666.64	5,666.64	5,666.64		
Military stores for Montana militia	11,792.20		11,792.20	11,792.20	11,792.20		
Expenses California Debris Commission	6,982.30		6,982.30	32,068.90	10,890.03		11,733.87
Investigating the mining debris question in California	2,766.01		15,111.70	36.90			3,766.01
Support of Bureau of Refugees, Freedmen, and Abandoned Lands							
Establishing Branch National Home for disabled volunteer soldiers, Danville, Ill.							
Bedstead for memorial bridge across Potomac River	180,000.00		100,000.00	250,000.00	195,000.00		55,000.00
	2,500.00			2,500.00	2,482.95		17.05
Total miscellaneous	3,818,721.80		4,238,706.21	8,037,464.41	4,346,617.55	248,931.95	3,461,914.91
Repayments in excess of payments							
Actual expenditures							
War claims of States.							
Examination of claims of States and Territories under act of June 27, 1893	5,689.75			5,689.75			5,689.75
Reimbursing State and citizens of California for expenses in suppressing Modoc Indian hostilities	234.25			224.25			234.25
Reimbursement to certain States and Territories for expenses incurred in repelling invasions and suppressing Indian hostilities							
Total war claims of States	5,914.00		2,644.59	8,553.59	2,644.59		5,914.00
War claims of volunteers.							
Bounty to volunteers, their widows, and legal heirs	86,869.47		191,745.77	278,615.24	134,862.42	51,408.24	92,343.58
Bounty to Fifteenth and Sixteenth Missouri Cavalry Volunteers			166.66	166.66	166.66		
Bounty under act of July 28, 1866	2,097.45		22,242.90	24,240.35	18,520.51	6,479.49	4,340.35
Bounty under act of July 4, 1864			33.33	33.33	33.33		
Pay of two and three year volunteers	5,691.04		376,671.85	352,362.59	290,092.54	6,054.32	86,179.03
Pay of volunteers			460.42	460.42	460.42		
Services and supplies of Montana volunteers in the Nez Percé Indian war	687.00			687.00			687.00
Pay, transportation, services, and supplies of Oregon and Washington volunteers, 1855 and 1856			277.18	277.18	277.18		
Horses and other property lost in the military service	5,667.31		366.75	6,023.06	366.75		5,667.31
Commutation of rations to prisoners of war in rebel States and to soldiers on furlough	10,115.97		4,177.25	14,293.22	4,099.68	7,588.73	2,608.81
Traveling expenses of California and Nevada volunteers	187.21		326.51	513.72	328.51		187.21
Pay of volunteers, Mexican war			23.93	23.93	23.93		
Capture of Jefferson Davis	1,503.83			1,503.33			1,503.38
Extra pay to officers and men who served in the Mexican war			100.00	100.00	100.00		
Total war claims of volunteers	112,788.83		596,591.55	709,380.38	444,838.93	71,558.78	193,484.67

Statement of appropriations under direction of the War Department for the fiscal year ending June 30, 1898, etc.—Continued.

Title of appropriation.	Balances July 1, 1897.	Appropriated July 1, 1897, to June 30, 1898.	Repayments July 1, 1897, to June 30, 1898.	Aggregate available.	Payments July 1, 1897, to June 30, 1898.	Carried to surplus fund June 30, 1898.	Balances June 30, 1898.
MISCELLANEOUS OBJECTS—continued.							
<i>Relief acts.</i>							
Relief of William S. Grant.		77,989.38		77,989.38	77,989.38		
Claims of officers and men of the Army for destruction of private property.		421.82		421.82	421.82		
Claims of loyal citizens for supplies furnished during the rebellion.	6,939.00			6,939.00			6,939.00
Claims for quartermaster stores and commissary supplies, act July 4, 1864.	1,048.74			1,048.74			1,048.74
Awards for quartermaster's stores and commissary supplies taken by army in Tennessee.	130.00			130.00			130.00
Relief of sufferers from overflow of Mississippi River and its tributaries and Red River of the North.	108,695.11		15,307.02	123,992.13			123,992.13
Relief of people in mining regions of Alaska.		200,000.00		200,000.00	157,568.13		42,431.87
Payments on account of the Ford theater disaster.	550.00	34,755.00		35,305.00	34,805.00		500.00
Relief of John Finn.	543.11			543.11			543.11
Relief of book agents of the Methodist Episcopal Church South.		288,000.00		288,000.00	288,000.00		
Relief of the Newberry College, Newberry, S. C.		16,000.00		16,000.00	16,000.00		
Relief of S. B. Bryan & Co.		3,643.60		3,643.60			
Relief of the legal representatives of John C. Howe, deceased.		66,907.00		66,907.00	66,907.00		
Total relief acts.	117,895.96	698,716.80	15,307.02	819,919.78	644,832.93		175,586.85
Repayments in excess of payments.					15,307.02		
Actual expenditures.					629,025.91		
RECAPITULATION.							
Salaries, contingencies, monuments, etc.	\$975,518.80	\$1,721,742.00	\$8,828.55	\$2,400,589.35	\$1,802,878.25	\$78,326.66	\$519,384.44
Military establishment, Army and Military Academy.	3,331,113.22	68,985,673.91		72,316,787.13	55,520,884.07	1,300,928.29	15,494,974.77
Public works.	46,259,194.84	19,591,367.73	5,581.69	66,856,144.26	30,943,012.51	44,205.40	34,868,928.85
Miscellaneous objects.	4,103,856.17	5,982,435.88	16,516.84	10,101,808.89	5,863,102.13	328,205.87	3,909,401.09
Total.	54,269,683.03	96,281,219.52	24,427.08	150,675,323.63	94,129,876.96	1,752,666.02	54,792,786.65
Repayments in excess of payments.					24,427.08		
Actual expenditures.					94,106,449.88		

**REPORT OF MAJOR-GENERAL NELSON A. MILES,
COMMANDING GENERAL, U. S. ARMY.**

**REPORT OF THE ADJUTANT-GENERAL TO THE MAJOR-GENERAL
COMMANDING THE ARMY.**

**REPORT OF THE INSPECTOR-GENERAL TO THE MAJOR-
GENERAL COMMANDING THE ARMY.**

**For convenience of binding, these reports form
Part 2 of Volume 1.**

**REPORT OF THE ADJUTANT-GENERAL TO THE
SECRETARY OF WAR.**

ANNUAL REPORT

OF THE

ADJUTANT-GENERAL TO THE SECRETARY OF WAR.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, November 1, 1898.

SIR: The following report for the year ending September 30, 1898, is respectfully submitted:

THE REGULAR ARMY.

The strength of the Regular Army on the 1st of April, 1898, just before the breaking out of the war, was as follows:

	Officers.	Enlisted men.
General officers and staff corps	532	2, 026
Cavalry	437	6, 047
Artillery	288	4, 486
Infantry	896	12, 828
Miscellaneous		653
Total	2, 148	26, 040

By the act of March 8, 1898, the artillery arm was increased by two regiments, the additional organizations to be composed of twelve batteries each, two of which in each regiment to be organized, in the discretion of the President, as field artillery. These regiments were designated in orders as the Sixth and Seventh, respectively; the headquarters of the Sixth established at Fort McHenry, Md., and those of the Seventh at Fort Slocum, N. Y.; the nucleus of each battery to be formed by the detail of fifteen enlisted men obtained by transfer from existing batteries, other than those on the Pacific coast, and regulated by the proper department commanders.

Under General Orders, No. 21, dated April 20, 1898, the equipment of each battery of light artillery was directed to include 6 guns and caissons, 1 combined forge and battery wagon, and 100 horses.

The act of Congress approved April 22, 1898, constituted the Regular Army one of the two branches of the Army of the United States in time of war, the second branch being designated as the Volunteer Army.

April 26, 1898, Congress passed a law prescribing the peace organization of each regiment of infantry, to consist of two battalions of four companies each and two unmanned companies, and authorized the President, upon a declaration of war, to establish a third battalion of

four companies each in the infantry arm, and increased the enlisted strength of a company of infantry to 106; that of a troop of cavalry to 100; of a battery of heavy artillery to 200; of each battery of light artillery to 173; of each company of engineers to 150, and of the Signal Corps, by the addition of 10 corporals, 100 first-class privates, and 40 second-class privates. Under the authority thus given a third battalion was established for each regiment of infantry, to take effect from the date of the law, and a sufficient number, not less than 20, of non-commissioned officers and men selected with reference to their ability to assist in the instruction of the recruits, ordered to be transferred to the new companies from other companies of the same regiment, and the company, troop, and battery organizations provided for in that act were ordered recruited to their war strength.

Under the authority conferred upon the President by section 4 of the act approved April 26, 1898, to add one second lieutenant to each battery of artillery when recruited to its war strength, he directed, July 13, 1898, an increase of the artillery arm of the service by the addition of 84 second lieutenants over and above the number provided for by the act of March 8, 1898.

In view of the then possibilities of the near future this office on the 16th of March last recommended an increase in the regular infantry, as follows:

A BILL for the better organization of the line of the Army of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That hereafter the peace organization of each regiment of infantry now in service shall embrace—

Colonel	1	Second lieutenants	10
Lieutenant-colonel	1	Sergeant-major	1
Majors	2	Quartermaster-sergeant	1
Captains	10	Chief musician	1
First lieutenants	12	Principal musicians	2

Two battalions of four companies each, and two skeleton or unmanned companies; the organized companies to be constituted as now authorized by law: *Provided*, That nothing herein contained shall be construed as abolishing the office of chaplain in each regiment of colored troops: *And provided further*, That the vacancies in the grade of major created by this section shall be filled by promotions according to seniority in the infantry arm.

SEC. 2. That in time of war the President, in his discretion, may establish a third battalion for each infantry regiment, consisting of four companies, to be supplied by manning the two skeleton companies, and by organizing two additional companies. The vacancies of commissioned officers in the additional companies shall be filled by promotions by seniority in the infantry arm, and by appointments in accordance with existing law.

SEC. 3. That in time of war the enlisted strength of a company, troop, and battery, respectively, may, in the discretion of the President, be increased to comprise not exceeding—

For each company of infantry:

First sergeant	1	Artificers	3
Commissary-sergeant	1	Wagoners	2
Sergeants	12	Privates	216
Corporals	12		
Musicians	3	Total enlisted	250

For each troop of cavalry:

First sergeant	1	Saddler	1
Quartermaster-sergeant	1	Wagoner	1
Sergeants	6	Privates	78
Corporals	8		
Farriers and blacksmiths	2	Total enlisted	100
Trumpeters	2		

For each battery of heavy artillery:

First sergeant	1	Artificers	2
Commissary-sergeant	1	Wagoner	1
Sergeants	22	Privates	161
Corporals	10		
Musicians	2	Total enlisted	200

For each battery of field artillery:

First sergeant	1	Saddler	1
Quartermaster-sergeant	1	Musicians	2
Veterinary sergeant	1	Wagoner	1
Sergeants	6	Privates	141
Corporals	15		
Farriers	2	Total enlisted	173
Artificers	2		

For each company of engineers:

First sergeant	1	First-class privates	64
Sergeants	10	Second-class privates	63
Corporals	10		
Musicians	2	Total enlisted	150

The quartermaster, commissary, and veterinary sergeants provided for in this section shall have the pay and allowances of sergeants of their respective arms.

SEC. 4. That when recruited to their war strength, the President may add one second lieutenant to each troop of cavalry and company of infantry, and one first lieutenant and one second lieutenant to each battery of artillery, such offices to be filled by promotions by seniority in the respective arms of the service and by appointments as prescribed by existing law.

SEC. 5. That to facilitate the recruitment to their war strength of troops, batteries, and companies, the President, in his discretion, may, in time of war, authorize each or any regiment of the Army to draw its recruits from such State or States as may be designated by him, the recruits thus obtained to be credited as a part of the quota of troops called for by the United States from any State so designated.

SEC. 6. That in time of war the President shall cause the batteries of artillery authorized by law to be organized as heavy or field artillery, as in his judgment the exigencies of the service may require.

SEC. 7. That in time of war the pay proper of enlisted men actually serving in commands operating against an enemy shall be increased twenty per centum over and above the rates of pay as fixed by law: *Provided*, That in war time no additional increased compensation shall be allowed to soldiers performing what is known as extra or special duty: *Provided further*, That any soldier who deserts shall, besides incurring the penalties now attached to the crime of desertion, forfeit all right to pension which he might otherwise have acquired: *And provided also*, That no bounty or money gratuity shall be paid by State or local authorities to a soldier as an inducement to enlist in the United States military service.

SEC. 8. That whenever the strength of a company of infantry, as established by the President, shall exceed one hundred and fifty enlisted men, the captain or other officer commanding it shall be mounted and be entitled to the pay and allowances of a mounted officer of his grade.

SEC. 9. That in time of war every officer serving with troops operating against an enemy, who shall exercise under assignment in orders issued by competent authority a command above that pertaining to his grade, shall be entitled to receive the pay and allowances of the grade appropriate to the command so exercised: *Provided*, That a rate of pay exceeding that of a brigadier-general shall not be paid in any case by reason of such assignment.

This proposed measure received the approval of the Secretary of War, and was sent to the Congress with the following recommendation:

WAR DEPARTMENT,
Washington, March 16, 1898.

SIR: I have the honor to submit, for the consideration of the House Committee on Military Affairs, the draft of a bill which, while providing for the organization of infantry on a three-battalion basis in war time, leaves its peace establishment substantially as at present, the only change being the addition of one major to the number of officers authorized for each regiment, a change which would involve a maximum annual outlay of \$87,500. A second major is needed to command one of

the battalions to be organized under section 2. All the captains who would be promoted to the grade of major by this act are officers of war service whose promotions have been already too long deferred.

The bill further provides for the expansion of the peace force into one of war strength. The war organization proposed corresponds very nearly with that of most modern military systems. It is in line with, but more specific than, the substitute for H. R. 9361 (Fifty-fourth Congress, second session), recommended by the House Military Committee, and reproduces the substance of the provision contained in that measure for recruiting the Army during war time, in States specially designated, and for crediting the recruits obtained to those States as part of their respective quotas.

All the arguments advanced by the Military Committee in support of the substitute bill referred to (H. R. 10009) apply with equal force to the bill herewith submitted. Upon the outbreak of war the bulk of the enlisted men of each infantry regiment could be consolidated into a single battalion and that of each cavalry regiment into two squadrons of approximately war strength. These organizations would, together with the available National Guard troops, supply an effective force for immediate service. At the same time the nuclei of the skeleton companies and troops could be assigned suitable territory in which to recruit and be ordered to join their regiments after completing their organization. The fighting force (exclusive of the staff of the Army), which as now authorized will consist of 1,610 officers and 25,430 men, might, under sections 3 and 4, be raised to, approximately, 2,348 officers and 104,384 men, distributed as follows: Cavalry, 552 officers and 12,050 men; artillery, 469 officers and 16,457 men; infantry, 1,327 officers and 75,125 men; engineer troops, 752 men.

The increase, leaving out of account the officers assigned to the engineer companies, who, both in peace and war time, are taken from the Corps of Engineers, would thus amount to 738 officers and 78,954 enlisted men.

The superiority of such a force made up of professional officers and noncommissioned officers skilled in their respective duties, over a hastily organized body, officered by men new to the service, both as regards effectiveness in action and economy of administration, would be incalculable.

The clauses which are introduced in the bill relative to deserters and the payment of bounties are based on the experience of the late civil war. At several stages in that war desertions assumed such proportions as to paralyze the operations of our armies in the field. Since then many of the deserters have been rehabilitated under one pretext or another, and are now the beneficiaries of the pension laws, as much so as the faithful soldiers who stood by their colors throughout the contest, or at least until their terms of enlistment expired. Common prudence would seem to require that warning be given beforehand that henceforth deserters need not expect clemency in any form. Nothing so shakes the discipline and effectiveness of an army as wholesale desertions from its ranks.

As to the effect of the bounty system, to which recourse was had extensively by State authorities for the sole purpose of filling their quotas, it may be well to quote here a passage from the final report of Provost-Marshal-General Fry, who had charge of the organization of the volunteer forces (p. 76):

"In general, those States who gave the highest local bounties are marked by the highest proportion of desertions. The bounty was meant to be an inducement to enlistment; it became in fact an inducement to desertion and fraudulent reenlistment."

The purposes of other provisions of the bill are obvious. Junior field officers and even captains are likely to fall into permanent command of regiments, and captains and lieutenants into the command of battalions and companies. Especially is this apt to be the case in the regular regiments, upon whose officers heavy drafts are likely to be made for staff work and for the command of the higher units. It is but fair that the pay of officers should be commensurate with their responsibilities. Apart from their intrinsic justice, these provisions, and the one giving the status of a mounted officer to the commander of a company with an enlisted strength of 150, are necessary for the maintenance of the effectiveness of the organizations concerned. "Extra duty," so called, is less arduous, and certainly less dangerous, than service in the ranks, and should carry with it no extra compensation.

Respectfully, yours,

R. A. ALGER, *Secretary of War.*

HON. JOHN A. T. HULL,
Chairman, House Military Committee.

The bill failed to receive the approval of the legislative branch of the Government.

The following table exhibits the strength of the Regular Army for each of the four months following the declaration of war with Spain, as shown by the latest returns on file in this office:

Organization.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
General officers and staffs	535	2, 874	535	5, 012	550	6, 553	548	7, 980
Cavalry	435	7, 835	430	9, 912	419	10, 591	419	11, 594
Artillery	305	7, 660	317	9, 065	309	11, 308	360	12, 454
Infantry	916	15, 296	916	17, 833	989	18, 883	987	22, 458
Miscellaneous		8, 569		8, 191		6, 496		1, 879
Totals	2, 191	41, 934	2, 198	49, 513	2, 327	53, 931	2, 323	56, 365
Enlistments in Regular Army		9, 569		9, 311		6, 586		3, 400

a Includes 5,365 men of Hospital Corps, which are exclusive of authorized strength.

Three hundred and eighty-seven officers of the Regular Army were appointed in the several grades in the Volunteer Army, as indicated below:

Major-generals	15	Surgeons	44
Brigadier-generals	45	Paymaster	1
Assistant adjutants-general	58	Engineers	22
Inspectors-general	16	Ordnance officers	21
Judge-advocates	3	Signal officers	12
Quartermasters	43	Officers of volunteer regiments	86
Commissaries of subsistence	21		

THE VOLUNTEER ARMY.

The joint resolution approved April 20, 1898, demanding that Spain relinquish its authority and government in the Island of Cuba and withdraw its land and naval forces from Cuba and Cuban waters, authorized the President to use the land and naval forces of the United States to carry the resolve into effect. Congress followed this step by the passage of an act, approved April 22, 1898, providing for the temporary increase of the military establishment of the United States.

By this law the organized and active land forces were declared to consist of the Regular Army and of the militia of the several States when called into service, constituting two branches, designated, respectively, as the Regular Army and the Volunteer Army of the United States. Section 6 provided that—

when the members of any company, troop, battery, battalion, or regiment of the organized militia of any State shall enlist in the Volunteer Army in a body, as such company, troop, battery, battalion, or regiment, the regimental, company, troop, battery, and battalion officers in service with the militia organization thus enlisting may be appointed by the governors of the States and Territories, and shall when so appointed be officers of corresponding grades in the same organization when it shall have been received into the service of the United States as a part of the Volunteer Army.

The same section further provided that the President may authorize—the Secretary of War to organize companies, troops, battalions, or regiments, possessing special qualifications, from the nation at large, not to exceed 3,000 men, under such rules and regulations, including the appointment of the officers thereof, as may be prescribed by the Secretary of War.

Section 7 authorized the recruitment to their maximum strength of all the accepted organizations in the volunteer force, and provided for the organization of regular and volunteer troops into divisions of three brigades, each brigade to be composed of three or more regiments, and

authorized the President, whenever three or more divisions are present in the same army, to organize them into army corps, each corps to consist of not more than three divisions. By section 13 not more than one officer of the Regular Army could hold a commission in any one of the regiments of the Volunteer Army at the same time.

Finally, by the act approved May 11, 1898, Congress authorized, in addition to the volunteer forces provided by the act of April 22, the organization of a volunteer brigade of engineers from the nation at large, to consist of not more than three regiments and not more than 3,500 men possessing the special qualifications for engineer troops, the officers of this brigade to be appointed by the Secretary of War. The same act authorized also the organization of an additional volunteer force, not exceeding 10,000 men possessing immunity from disease incident to tropical climates, the officers of this force to be appointed by the President, by and with the advice and consent of the Senate.

Under the authority conferred upon him by the joint resolution of April 20 and the act of April 22, 1898, the President issued a proclamation, dated April 23, 1898, calling for volunteers to the number of 125,000 men, to be apportioned as far as practicable among the several States, Territories, and the District of Columbia, according to population, to serve for two years unless sooner discharged.

The apportionment under this call, aggregating 5 regiments and 17 troops of cavalry, 16 batteries of light artillery, 1 regiment and 7 batteries of heavy artillery, 119 regiments and 10 battalions of infantry, was as follows:

Alabama, 2 regiments and 1 battalion of infantry.
 Arkansas, 2 regiments of infantry.
 California, 2 regiments and 2 battalions of infantry, 4 batteries of heavy artillery.
 Colorado, 1 regiment of infantry.
 Connecticut, 1 regiment of infantry, 1 battery of light artillery, and 2 batteries of heavy artillery.
 Delaware, 1 regiment of infantry.
 Florida, 1 regiment of infantry.
 Georgia, 2 regiments of infantry and 2 batteries of light artillery.
 Idaho, 2 battalions of infantry.
 Illinois, 7 regiments of infantry, 1 battery of light artillery, and 1 regiment of cavalry.
 Indiana, 4 regiments of infantry and 2 batteries of light artillery.
 Iowa, 4 regiments of infantry.
 Kansas, 3 regiments of infantry.
 Kentucky, 3 regiments of infantry and 2 troops of cavalry.
 Louisiana, 2 regiments of infantry.
 Maine, 1 regiment of infantry and 1 battery of heavy artillery.
 Maryland, 1 regiment of infantry.
 Massachusetts, 4 regiments of infantry and 1 regiment of heavy artillery.
 Michigan, 4 regiments of infantry.
 Minnesota, 3 regiments of infantry.
 Mississippi, 2 regiments of infantry.
 Missouri, 5 regiments of infantry and 1 battery of light artillery.
 Montana, 1 regiment of infantry.
 Nebraska, 2 regiments of infantry.
 Nevada, 1 troop of cavalry.
 New Hampshire, 1 regiment of infantry.
 New Jersey, 3 regiments of infantry.
 New York, 12 regiments of infantry and 2 troops of cavalry.
 North Carolina, 2 regiments and 1 battalion of infantry.
 North Dakota, 2 battalions of infantry.
 Ohio, 8 regiments of infantry, 8 troops of cavalry, and 4 batteries of light artillery.
 Oregon, 1 regiment of infantry.
 Pennsylvania, 15 regiments of infantry, 3 batteries of light artillery, and 3 troops of cavalry.
 Rhode Island, 1 regiment of infantry.
 South Carolina, 1 regiment and 1 battalion of infantry, 1 battery of heavy artillery.
 South Dakota, 1 regiment of infantry.
 Tennessee, 3 regiments of infantry.

Texas, 3 regiments of infantry and 1 regiment of cavalry.
 Utah, 2 batteries of light artillery and 1 troop of cavalry.
 Vermont, 1 regiment of infantry.
 Virginia, 3 regiments of infantry.
 Washington, 1 regiment of infantry.
 West Virginia, 1 regiment of infantry.
 Wisconsin, 3 regiments of infantry.
 Wyoming, 1 battalion of infantry.
 District of Columbia, 1 regiment of infantry.

May 25, 1898, the President issued a proclamation calling for an additional force of 75,000 men. For controlling military reasons, it was determined to utilize so much of this additional force as was necessary to bring up the several State organizations in service to the full legal strength, the remainder to be apportioned among the several States and Territories according to their respective quotas as nearly as possible. The apportionment under this second call is indicated below and comprised 16 batteries of light artillery, 3 battalions of heavy artillery, and 22 regiments, 10 battalions, and 46 companies of infantry.

Alabama, 2 battalions of infantry.
 California, 1 regiment of infantry.
 Colorado, 1 battery of light artillery.
 Connecticut, 1 regiment of infantry.
 Georgia, 1 regiment of infantry.
 Illinois, 2 regiments of infantry.
 Indiana, 1 regiment and 2 companies of infantry.
 Iowa, 2 batteries of light artillery.
 Kansas, 2 battalions of infantry.
 Kentucky, 1 regiment of infantry.
 Louisiana, 3 batteries of light artillery.
 Maine, 3 batteries of heavy artillery.
 Maryland, 1 battalion of infantry.
 Massachusetts, 1 regiment of infantry.
 Michigan, 1 regiment of infantry.
 Minnesota, 1 regiment of infantry.
 Mississippi, 6 companies of infantry.
 Missouri, 1 regiment of infantry.
 Nebraska, 1 regiment of infantry.
 Nevada, 4 companies of infantry.
 New Jersey, 1 regiment of infantry.
 New York, 3 regiments of infantry and 3 batteries of light artillery.
 North Carolina, 7 companies of infantry.
 Ohio, 1 regiment and 9 companies of infantry.
 Oregon, 2 batteries of light artillery.
 Pennsylvania, 18 companies of infantry.
 Rhode Island, 2 batteries of light artillery.
 South Carolina, 2 battalions of infantry.
 Tennessee, 1 regiment of infantry.
 Texas, 1 regiment of infantry.
 Utah, 1 battery of light artillery.
 Virginia, 2 battalions of infantry.
 Washington, 1 battalion of infantry.
 West Virginia, 1 regiment of infantry.
 Wisconsin, 1 regiment of infantry and 1 battery of light artillery.
 Wyoming, 1 battery of light artillery.
 Arizona, New Mexico, Oklahoma, and Indian Territory, 1 regiment of infantry.

In view of the imminence of war with Spain, and in anticipation of the action of the Congress and of the call of the President for volunteers, carefully prepared regulations were issued April 22, 1898, for the guidance and government of the numerous prospective mustering officers whose duty it would be to critically inspect the volunteer organizations that would be offered for muster into the service of the United States. The general orders, circulars, etc., are attached to this report in appendix for the muster, instruction, health, welfare, and comfort of the volunteers, whether in the field, in camps, in hospitals, on furlough, etc.—*in fact, under all conceivable conditions—from the date of their recep-*

tion into the service of the United States until their final discharge from military duty.

The following table exhibits the strength of the Volunteer Army at the several periods indicated:

Strength of the Volunteer Army.

Organization.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Major-generals	11	.....	12	.....	18	.....	21	.....
Brigadier-generals	25	.....	70	.....	70	.....	71	.....
Adjutant-General's Department	54	.....	98	.....	100	.....	99	.....
Inspector-General's Department	19	.....	30	.....	27	.....	25	.....
Judge-Advocate-General's Department	6	.....	7	.....	8	.....	8	.....
Quartermaster-General's Department	84	.....	82	.....	114	.....	121	.....
Subsistence Department	25	.....	87	.....	106	.....	108	.....
Medical Department	19	.....	84	.....	99	.....	113	.....
Pay Department	12	.....	65	.....	80	.....	86	.....
Corps of Engineers	10	.....	24	.....	28	.....	28	.....
Ordnance Department .....	.....	.....	.....	.....	20	.....	24	.....
Signal Corps	10	.....	101	897	112	1,089	111	1,173
Engineers .....	.....	.....	81	704	108	2,458	150	8,286
Cavalry	285	5,973	292	6,920	292	7,221	289	7,003
Heavy artillery	83	1,836	83	2,010	98	2,540	92	2,570
Light artillery	69	1,706	84	2,979	120	4,405	120	4,265
Infantry	5,562	109,066	5,969	139,845	7,238	185,748	7,319	188,947
Total	6,224	118,580	7,169	153,355	8,633	203,461	8,785	207,244

The patriotic response of the several states under the first call for volunteers and the activity of the officers detailed for duty in mustering troops is sufficiently indicated by the fact that on May 31, 1898, a little more than a month after the President's call for volunteers, nearly 125,000 men had been mustered into service. The muster in of the three regiments of cavalry was completed by May 30; that of the ten regiments of infantry (immune) by July 30; that of the three regiments of engineers by August 20; the last volunteer organization being mustered in August 24, 1898.

The aggregate strength of the Regular and of the Volunteer armies for each of the months of May, June, July, and August was as follows:

	Officers.	Enlisted men.	Grand total.
May:			
Regular Army	2,191	41,934	44,125
Volunteer Army	6,224	118,580	124,804
Aggregate	8,415	160,514	168,929
June:			
Regular Army	2,196	49,513	51,711
Volunteer Army	7,169	153,355	160,524
Aggregate	9,367	202,868	212,235
July:			
Regular Army	2,327	53,931	56,258
Volunteer Army	8,633	203,461	212,094
Aggregate	10,960	257,392	268,352
August:			
Regular Army	2,323	56,865	58,688
Volunteer Army	8,785	207,244	216,029
Aggregate	11,108	263,609	274,717

The suspension of hostilities, resulting from the short but brilliant operations of the army against Santiago, Cuba, leading to its capture and of that of the Spanish forces defending the city, the surrender of Spanish troops in Porto Rico, no less than the successful operations of our troops in the Philippines, led to the determination to muster out 100,000 men, nearly one-half of the entire volunteer force, and the first order looking to that end was issued on the 18th of August last.

In the performance of the delicate duty of selecting the organizations to be mustered out of service, it is perhaps unnecessary to state that in this case, as in that of the apportionment of the volunteers called into the service of the United States, it has been impossible, for obvious reasons, to preserve the absolutely correct arithmetical proportion, in the first instance, to the State quotas, and, in the second, to the actual number of troops from the several States, accepted and mustered into the service of the United States.

The following statement indicates the several organizations designated for muster out, the station opposite each organization being the State rendezvous to which the organization was ordered prior to final discharge:

Alabama: First Regiment of Infantry, Birmingham, Ala.; Second Regiment of Infantry, Montgomery, Ala.

Arkansas: First Regiment of Infantry, Fort Logan H. Roots, Ark.

California: Sixth Regiment of Infantry, San Francisco, Cal.; Seventh Regiment of Infantry, Los Angeles, Cal.

Colorado: First Colorado Battery, Fort Hancock, N. J.

Connecticut: First Regiment of Infantry, company stations; Light Battery A, New Haven, Conn.; Heavy Battery C, New Haven, Conn.; Heavy Battery B, Bridgeport, Conn.

Delaware: First Regiment of Infantry, Wilmington, Del.

Florida: First and Second battalions, First Regiment of Infantry, Tallahassee, Fla.

Georgia: First Regiment of Infantry, Macon, Ga.; Second Regiment of Infantry, company stations; Light Batteries A and B, Griffin, Ga.

Illinois: First Regiment of Infantry, Chicago, Ill.; Seventh Regiment of Infantry, Chicago, Ill.; Fifth Regiment of Infantry, Springfield, Ill.; Sixth Regiment of Infantry, Springfield, Ill.; First Regiment of Cavalry, Fort Sheridan, Ill.; Light Battery A, Danville, Ill.

Indiana: One hundred and fifty-seventh, One hundred and fifty-eighth, and One hundred and fifty-ninth regiments of infantry, Twenty-seventh and Twenty-eighth Independent batteries, and Fourteenth Volunteer Signal Company, Indianapolis, Ind.

Iowa: Fiftieth and Fifty-second regiments of infantry and Fifth and Sixth batteries, Des Moines, Iowa.

Kansas: Twenty-first and Twenty-second Regiments of Infantry, Fort Leavenworth, Kans.

Kentucky: Second Regiment of Infantry and Troops A and B of Cavalry, Lexington, Ky.

Louisiana: First Regiment of Infantry, Jacksonville, Fla.; Light Batteries A, B, and C, Jackson Barracks, La.

Maine: First Regiment of Infantry, company stations.

Maryland: Fifth Regiment of Infantry, Baltimore, Md.

Massachusetts: Second and Ninth Regiments of Infantry and First Regiment of Heavy Artillery, company stations.

Michigan: Thirty-second, Thirty-third, and Thirty-fourth Regiments of Infantry, company stations.

Minnesota: Twelfth Regiment of Infantry, New Ulm, Minn.; Fourteenth Regiment of Infantry, St. Paul, Minn.

Mississippi: First and Second Regiments of Infantry, Columbia, Tenn.

Missouri: First Regiment of Infantry and Light Battery A, St. Louis, Mo.; Third and Fifth Regiments of Infantry, Kansas City, Mo.

Nebraska: Second Regiment of Infantry, Fort Omaha, Nebr.

Nevada: Battalion of Infantry, Carson City, Nev.

New Hampshire: First Regiment of Infantry, Concord, N. H.

New Jersey: First Regiment of Infantry, Newark, N. J.; Second Regiment of Infantry, Paterson, N. J.

New York: Eighth and Ninth Regiments of Infantry, Fourth and Fifth Light Batteries, Troop A, Cavalry; Seventy-first Regiment of Infantry, New York City, N. Y.; Fourteenth Regiment of Infantry, Troop C, Cavalry, Brooklyn, N. Y.; Second and

Third Regiments of Infantry, company stations; Twenty-second Regiment of Infantry, Fort Slocum, N. Y.; Sixty-fifth Regiment of Infantry, Buffalo, N. Y.; Seventh Light Battery, Rochester, N. Y.

North Carolina: Second Regiment of Infantry, company stations.

Ohio: First Regiment of Infantry, Cincinnati, Ohio; Third and Seventh Regiments of Infantry and First Battalion Light Artillery, Columbus, Ohio; two squadrons of cavalry, Columbus, Cleveland, and Cincinnati, Ohio; Eighth Regiment of Infantry, Wooster, Ohio; Fifth Regiment of Infantry, Cleveland, Ohio.

Oregon: Light Battery A, Vancouver Barracks, Wash.; Light Battery B, Portland, Oreg.

Pennsylvania: First, Second, and Third Regiments of Infantry, Philadelphia City Troop, Cavalry, Light Battery A, Philadelphia, Pa.; Fourth Regiment of Infantry, company stations; Governor's Troop, Cavalry, Harrisburg, Pa.; Fifth Regiment of Infantry, company stations; Sixth Regiment of Infantry, company stations; Ninth Regiment of Infantry, company stations; Twelfth Regiment of Infantry, company stations; Eighteenth Regiment of Infantry and Light Battery B, Pittsburg, Pa.; Sheridan's Troop, Cavalry, Tyrone, Pa.; Light Battery C, Phoenixville, Pa.

Rhode Island: Light Batteries A and B, Quonset Point, R. I.

South Carolina: First Regiment of Infantry, Columbia, S. C.

Texas: Second Regiment of Infantry, Dallas, Tex.; First Regiment of Cavalry, San Antonio, Tex.

Vermont: First Regiment of Infantry, company stations.

Virginia: Second Regiment of Infantry, company stations; Third Regiment of Infantry, Richmond, Va.

Washington: Battalion of Infantry, Vancouver Barracks, Wash.

Wisconsin: First and Second Regiments of Infantry, company stations; Light Battery, Camp Douglas, Wis.

District of Columbia: First Regiment of Infantry, Washington, D. C.

United States Volunteers: First Regiment of Cavalry, Montauk Point, N. Y.; Second Regiment of Cavalry, Jacksonville, Fla.; Third Regiment of Cavalry, Chickamauga, Ga.; First Regiment of Infantry, Galveston, Tex.; Eighth Volunteer Signal Corps Company, Augusta, Me.; Ninth Volunteer Signal Corps Company, New York City, N. Y.; Tenth Volunteer Signal Corps Company, Boston, Mass.; Fifth Volunteer Signal Corps Company, Washington Barracks, D. C.; Seventh Volunteer Signal Corps Company, Chicago, Ill.

The following-named regiments are under orders to return from Porto Rico to the United States and rendezvous at the place opposite their respective designation: Third Illinois, Springfield, Ill.; Sixth Massachusetts Infantry, South Framingham, Mass.; Fourth Ohio Infantry, Columbus, Ohio; Sixteenth Pennsylvania Infantry, Mount Gretna, Pa.; Third Wisconsin Infantry, Milwaukee, Wis.; First United States Volunteer Engineers.

Since the signing of the protocol the officers and men of the volunteer regiments have remained at their posts of duty, in most cases at great personal sacrifice. That they have done this cheerfully and without complaint makes it all the more desirable that a speedy increase of the Regular Army be provided for in order that the volunteers may be released from further service and be allowed to return to their peaceful vocations.

The officers of the Regular Army detailed to make the examination and muster-in of the volunteer regiments, also the officers detailed for mustering out volunteers, performed their duty with promptness and with great care.

STAFF ORGANIZATION.

Much has been said of late concerning the organization of the several staff departments. If, as recommended in another part of this report, additional officers are given the line of the Army, so as to give plenty of trained officers for staff duty in time of war, the main objection will have been met; and it is doubtful, if, under all the conditions peculiar to this Government, a general reorganization of the staff, or the adoption of new systems, will be found to be desirable; certainly nothing radical should be entered upon.

Under the present system, Grant, Sherman, and Sheridan conducted great and successful campaigns; it has worked well in our Indian wars, and it is confidently asserted that, when the work of the staff departments in this war is more fully understood, it will receive the approval of military men and of the people generally.

That there can be improvements in many ways there is no doubt; that this should be done as the result of experience is also true.

The following is the average length of service in the line of officers previous to their appointment in the staff corps: Adjutant-General's Department, 20 years 4 months; Inspector-General's Department, 21 years 8 months; Quartermaster's Department, 13 years 3 months; Subsistence Department, 11 years.

It will be noted that the officers of the general staff are in no sense lacking in actual service with troops.

MILITARY GEOGRAPHICAL DEPARTMENTS.

Important considerations led, early in the year, to a comprehensive rearrangement of the several geographical departments into which, for facility of military administration, the country is divided. Two new departments, those of the Lakes and of the Gulf, were created; the Department of the Missouri was reconstituted; the Departments of the Platte and of Texas discontinued; and the geographical limits of other departments were rectified, by General Orders, No. 7, Headquarters of the Army, dated March 11, 1898.

DEPARTMENT OF THE EAST.

The southern and southwestern portion of this department was created into a new department, that of the Gulf, and the States of Ohio, Kentucky, and Tennessee were transferred to the new Department of the Lakes. The present department consists of the New England States, the States of New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and the District of Columbia.

The declaration of war with Spain made the defense of the entire Atlantic seaboard against possible attack a question of the utmost importance. With this object in view, the governors of the several littoral States were freely consulted and their active cooperation enlisted in favor of providing temporary garrisons, drawn from the State militia, for those exposed points where no defenses containing heavy guns existed, or where the defenses had either no garrisons or only small ones. Infantry supports were drawn, while war was in progress, from some of the volunteer infantry, heavy artillery, and light batteries organized under the first call for troops, and the organizations were recruited to war strength of twelve companies. The number of men so utilized was, approximately, 12,000. The troops, while employed as garrison supports, were constantly drilled, and the discipline and efficiency attained by them was very creditable to the character and length of service of the several organizations. After cessation of hostilities, in July last, the infantry supports were transferred to inland camps, the withdrawal being completed by September 1, 1898.

DEPARTMENT OF THE LAKES.

This department consists of the States of Michigan, Wisconsin, Illinois, and Indiana, taken from the old Department of the Missouri, and of the States of Ohio, Kentucky, and Tennessee, taken from the Department of the East. The concentration, at an early date, of most

of the military organizations in this department almost stripped it of troops, leaving but one officer and a small detachment at each post to guard public property. Later, however, the Fourth, Sixth, and Seventeenth Infantry were ordered back, and, with eight companies of the Seventh Infantry, designated to garrison Fort Wayne, Mich., represent the present military strength in the Department of the Lakes.

DEPARTMENT OF THE GULF.

This new department, created for the more direct control of the troops about to be concentrated at camps in the Southern States, consists of the States of South Carolina, Georgia, Florida, Alabama, and Mississippi, taken from the Department of the East, and of the State of Texas, which constituted the Department of Texas, discontinued.

DEPARTMENT OF DAKOTA.

This department consists of the States of Minnesota, North and South Dakota, Montana, and so much of Wyoming and Idaho as is embraced in the Yellowstone National Park. Part of the State of South Dakota and the Yellowstone National Park were added to this department from the discontinued Department of the Platte.

DEPARTMENT OF THE MISSOURI.

The old Department of the Missouri was dismembered; the States of Missouri, Kansas, Arkansas, the Indian and Oklahoma Territories being constituted part of the new department of the same name, and the States of Michigan, Wisconsin, Indiana, and Illinois transferred to the newly created Department of the Lakes; the States of Iowa and Nebraska, now in this department, were taken from the Department of the Platte, which was abolished.

DEPARTMENT OF THE COLORADO.

This department consists of the States of Wyoming (except so much thereof as is embraced in the Yellowstone National Park), Colorado, and Utah, and the Territories of Arizona and New Mexico. The State of Wyoming, as described above, was taken from the Department of the Platte.

DEPARTMENT OF CALIFORNIA.

The States of California and Nevada constituted this department until July 12, 1898, when, by a Presidential order of that date, the Hawaiian Islands and their dependencies, annexed to the United States by the resolution of Congress approved July 7, 1898, were attached to and included in the Department of California.

DEPARTMENT OF THE COLUMBIA.

The territorial limits of this department were extended eastward, by the addition of so much of the State of Idaho as had, heretofore, been included in the Department of the Platte. On the declaration of war with Spain, the Fourteenth Infantry, except two companies left in Alaska, and four troops of the Fourth Cavalry were withdrawn from this department to form a part of the Philippine expedition, while the Sixteenth Infantry was ordered to the camp established at Chattanooga, Tenn.

DEPARTMENT OF SANTIAGO.

This department, created by General Orders, No. 118, War Department, Adjutant-General's Office, August 10, 1898, consists of all that part of the Island of Cuba and the islands and keys adjacent and belonging thereto, or which have or may hereafter come under the control of the United States, and Maj. Gen. Henry W. Lawton, United States Volunteers, was assigned, in the same orders, to the command of this department, with headquarters in the city of Santiago.*

DEPARTMENT OF PORTO RICO.

Created October 1, 1898, by General Orders, No. 158, Headquarters of the Army, Adjutant-General's Office, consists of the island of Porto Rico and the islands and keys adjacent and belonging thereto. Maj. Gen. John R. Brooke, United States Army, was assigned, by the order above cited, to the command of this department, and was authorized, for the present, to establish his headquarters at such place as he may select. He has since then selected San Juan as the headquarters of the department.

DEPARTMENT OF THE PACIFIC.

Created May 16, 1898, by General Orders, No. 46, Headquarters of the Army, Adjutant-General's Office, consists of Manila and any or all of the Philippine Islands that may come under the control of the United States.

ARMY CORPS AND PORTO RICAN EXPEDITION.

On April 15, 1898, the regiments of the Regular Army, with few exceptions, were ordered to proceed to designated points in the South, viz:

Troops.	From—	To—
First United States Cavalry	Kansas, Arizona, Oklahoma, and Illinois.	Chickamauga Park, Ga.
Second United States Cavalry	New Mexico, Colorado, and Kansas.	Do.
Third United States Cavalry	Vermont and Missouri	Do.
Sixth United States Cavalry	Virginia, Kansas, and Nebraska ..	Do.
Ninth United States Cavalry	Nebraska, Utah, and Wyoming ..	Do.
Tenth United States Cavalry	Montana	Do.
Light Battery E, First United States Artillery.	District of Columbia	Do.
Light Battery K, First United States Artillery.	Texas	Do.
Light Battery A, Second United States Artillery.	Illinois	Do.
Light Battery F, Second United States Artillery.	Rhode Island	Do.
Light Battery C, Third United States Artillery.	California	Do.
Light Battery F, Third United States Artillery.	.....do	Do.
Light Battery B, Fourth United States Artillery.	Louisiana	Do.
Light Battery F, Fourth United States Artillery.	Virginia	Do.
Light Battery D, Fifth United States Artillery.	New York	Do.
Light Battery F, Fifth United States Artillery.	Georgia	Do.
First United States Infantry	California	New Orleans, La.

* Major General Lawton has been succeeded by Brig. Gen. Leonard Wood, United States Volunteers. General Lawton has been assigned to duty with the Second Army Corps.

Troops.	From—	To—
Second United States Infantry	Montana and North Dakota	Chickamauga Park, Ga.
Third United States Infantry	Minnesota	Mobile, Ala.
Fourth United States Infantry	Illinois	Tampa, Fla.
Fifth United States Infantry	Georgia	Do.
Sixth United States Infantry	Kentucky	Do.
Seventh United States Infantry	Colorado	Chickamauga Park, Ga.
Eighth United States Infantry	Wyoming	Do.
Ninth United States Infantry	New York	Tampa, Fla.
Tenth United States Infantry	Oklahoma	Do.
Eleventh United States Infantry	Missouri and Arkansas	Mobile, Ala.
Twelfth United States Infantry	Nebraska	Chickamauga Park, Ga.
Thirteenth United States Infantry	New York	Tampa, Fla.
Sixteenth United States Infantry	Idaho and Washington	Chickamauga Park, Ga.
Seventeenth United States Infantry	Ohio	Tampa, Fla.
Eighteenth United States Infantry	Texas	New Orleans, La.
Nineteenth United States Infantry	Michigan	Mobile, Ala.
Twentieth United States Infantry	Kansas	Do.
Twenty-first United States Infantry	New York	Tampa, Fla.
Twenty-second United States Infantry	Nebraska	Do.
Twenty-third United States Infantry	Texas	New Orleans, La.
Twenty-fourth United States Infantry	Utah	Chickamauga Park, Ga.
Twenty-fifth United States Infantry	Montana	Do.
Company E, Engineers	West Point	Tampa, Fla.

April 23, 1898, the troops assembled in the Chickamauga National Park (Camp George H. Thomas) were constituted a provisional army corps, under Maj. Gen. John R. Brooke.

By direction of the President, May 7, 1898, seven army corps were constituted, embracing both the regular and volunteer branches of the Army, and later, June 21, the forces comprising the Philippine expedition were constituted an army corps, to be known as the Eighth.

FIRST AND THIRD ARMY CORPS,

[Maj. Gen. John R. Brooke, United States Volunteers, and Maj. Gen. James F. Wade, United States Volunteers, respectively, commanding. Headquarters at Camp Thomas, Ga.]

These corps were organized at Camp Thomas, Ga. Their combined strength on the last day of the months of April, May, June, July, and August was as follows:

	Officers.	Enlisted men.
April	383	6,328
May	2,191	42,036
June	2,004	56,544
July	1,563	42,280
August	436	12,725

In July the First Division of the First Corps, under General Wilson, was detailed for duty in Porto Rico, and August 22 the Second and Third divisions of that corps were sent to Lexington, Ky., and Knoxville, Tenn., respectively.

The Third Army Corps was transferred early in September to the camp established at Anniston, Ala., and by the end of the month but a small detachment remained at Camp Thomas, Ga.

SECOND ARMY CORPS.

[Maj. Gen. William M. Graham, United States Volunteers. Headquarters at Falls Church, Va.]

The Second Corps was organized at Camp Alger, near Falls Church, Va. It having been determined in the latter part of July to discontinue Camp Alger, a new site for a camp was selected near Middletown, Pa. (called Camp Meade). The Second Division of the corps commenced to move about August 2 and early in September the remainder of the corps left the first-named camp. The strength of the corps for the months from May to August is given below, the figures for the last month including the troops at Camp Meade:

	Officers.	Enlisted men.
May	908	17,406
June.....	887	22,624
July.....	802	21,373
August.....	768	20,686

FOURTH ARMY CORPS.

[Maj. Gen. John J. Coppinger, United States Volunteers. Headquarters at Mobile, Ala.]

The organization of this corps was begun at Mobile, Ala. June 2 the Fourth Corps commenced the march to Tampa, Fla., and July 23 the Third Division of the corps was transferred to Fernandina, Fla. The corps having been ordered to Huntsville, Ala., the movement was begun August 11, and by the end of the month the only troops of the corps remaining at Tampa was 1 officer and 29 men of the Signal Corps. The strength present on the last day of each month was as follows:

	Officers.	Enlisted men.
May	343	7,456
June.....	763	20,053
July.....	548	13,485
August.....	413	9,933

FIFTH ARMY CORPS.

[Maj. Gen. William R. Shafter, United States Volunteers. Headquarters at Tampa, Fla.]

This corps was organized at Tampa, Fla. On June 7 the corps embarked on transports for Santiago, Cuba, the fleet sailing June 14, and the troops commenced to disembark at Daiquiri on June 22.

After the vigorous and successful campaign which resulted in the surrender of Santiago, it was decided, owing to the prevalence of disease which infected the army there, to withdraw the troops that had been operating in Cuba. The repatriation of the United States forces was commenced August 7, and, excepting the sick in hospitals, was completed by August 24 (seventy days from date of sailing from Tampa), when General Shafter and his staff sailed for the United States.

The strength present of this corps, for the months indicated, was as follows:

	Officers.	Enlisted men.
May	789	15, 657
June	791	14, 945
July	840	18, 819
August	618	14, 347

The following troops were sent to relieve the Fifth Army Corps, and now form garrisons of the Department of Santiago: Fifth United States Infantry, Twenty-third Kansas Volunteer Infantry, Eighth Illinois Volunteer Infantry, Second United States Volunteer Infantry, Third United States Volunteer Infantry, Fourth United States Volunteer Infantry, Fifth United States Volunteer Infantry, and Ninth United States Volunteer Infantry.

SIXTH ARMY CORPS.

[Maj. Gen. James H. Wilson, United States Volunteers. Headquarters at Camp Thomas, Ga.]

The Sixth Corps was not organized, and General Wilson was assigned to the command of the First Division of the First Corps.

SEVENTH ARMY CORPS.

[Maj. Gen. Fitzhugh Lee, United States Volunteers. Headquarters at Tampa, Fla.]

The corps was organized at Tampa, Fla., on May 29. General Lee having been authorized to establish his headquarters at Jacksonville, Fla., the corps removed to that place May 31, with the exception of the First Division, which remained at Tampa, Fla.

A division (General Schwan's) of the Fourth Army Corps, at Mobile, Ala., was transferred, June 20, to the Camp at Miami, Fla., and on the 23d of the same month was designated as the First Division of the Seventh Army Corps. This division was subsequently (July 31) transferred from Miami to Jacksonville, Fla.

The following was the strength present of this corps on the last day of the months named:

	Officers.	Enlisted men.
May	496	8, 847
June	781	18, 375
July	909	23, 193
August	1, 025	27, 817

EIGHTH ARMY CORPS.

[Maj. Gen. Wesley Merritt, United States Army.]

This corps embraced the forces comprising the Philippine expedition, the troops being concentrated at San Francisco and forwarded to Manila at different dates.

The first expedition for Manila, under command of Gen. T. M. Anderson, United States Volunteers, sailed May 25, consisting of the First California Infantry, Second Oregon Infantry, five companies Fourteenth United States Infantry, and a detachment of California Artillery—115 officers and 2,386 enlisted men—arriving off Manila June 30.

The second expedition, under the command of Gen. F. V. Greene, United States Volunteers, sailed June 15, and consisted of the First Colorado, First Nebraska, Tenth Pennsylvania Infantry, four companies Eighteenth and four companies Twenty-third United States Infantry, two batteries Utah Artillery, and detachment of United States Engineers—a total of 158 officers and 3,428 enlisted men—arriving at their destination July 17.

The third expedition, under the command of Generals Merritt, United States Army, commanding corps, and MacArthur, United States Volunteers, sailed June 27 and 29, and consisted of four companies of Eighteenth and four companies of Twenty-third United States Infantry, four batteries of Third United States Artillery, one company United States Engineers, First Idaho, First Wyoming, Thirteenth Minnesota, and First North Dakota Infantry, the Astor Battery, and detachments of Hospital and Signal Corps, a total of 197 officers and 4,650 enlisted men, which arrived at their destination July 25 and 31.

The fourth expedition, under command of Gen. E. S. Otis, United States Volunteers, sailed July 15, and consisted of six troops Fourth United States Cavalry, two batteries Sixth United States Artillery, five companies Fourteenth United States Infantry, and detachments of recruits, a total of 42 officers and 1,640 enlisted men, and arrived at its destination August 21.

The fifth expedition, under command of Col. H. C. Kessler, of the First Montana Infantry, sailed July 19, and consisted of the First Montana Infantry and detachment of recruits, a total of 54 officers and 1,294 enlisted men, arriving at destination August 24.

The sixth expedition, under command of Gen. H. G. Otis, United States Volunteers, sailed July 23, and consisted of eight companies of the First South Dakota and detachments, a total of 50 officers and 846 enlisted men, arriving at destination August 24.

The seventh expedition, under command of Lieut. Col. Lee Stover, First South Dakota Infantry, sailed July 29, and consisted of four companies of First South Dakota and detachment of recruits, a total of 25 officers and 814 enlisted men, arriving at destination August 31.

The total forces of the seven expeditions made a grand total of 641 officers and 15,058 enlisted men. [Since then, on October 19, 27, 28, and 30, 1898, the Twentieth Kansas, First Tennessee, and First Washington Infantry Volunteers, and a battalion of California Artillery were sent to the Philippines, numbering 99 officers and 2,565 enlisted men.]

The number of troops present, remaining at San Francisco after sailing of the expeditions, and which had been designated for the Philippines, was, on the last day of each month, as follows:

	Officers.	Enlisted men.
May	522	10, 793
June	395	11, 660
July	276	7, 478
August	258	5, 983

PORTO RICAN EXPEDITION.

Under instructions of June 26, 1898, from the President to Maj. Gen. Nelson A. Miles, commanding the Army, an expedition, under the immediate command of Maj. Gen. John R. Brooke, United States Army, was directed to be organized from the First, Third, and Fourth Army Corps, for movement and operation against the enemy in Porto Rico.

The first of these troops, under command of the Major-General Commanding the Army, sailed from Guantanamo, Cuba, July 21, with the Sixth Massachusetts Volunteer Infantry, Sixth Illinois Volunteer Infantry, of Gen. G. A. Garretson's brigade of General Guy V. Henry's division, and batteries C and F, Third United States Artillery, Battery B, Fourth United States Artillery, Battery D, Fifth United States Artillery, a provisional battalion of engineers formed from Company H, First District of Columbia Volunteers, a provisional company formed from the First Illinois Volunteers, a detachment of 34 privates of the battalion of engineers, United States Army, and a detachment of recruits, Signal and Hospital Corps, making a total of 3,554 officers and men, and landed at Guanica, Porto Rico, July 25, 1898.

On July 21 the Sixteenth Pennsylvania Volunteer Infantry, Second and Third Wisconsin Volunteer Infantry, Companies D and M, Sixth Illinois Volunteer Infantry, making a total of 162 officers and 3,150 enlisted men, under command of Maj. Gen. James H. Wilson, sailed from Charleston, S. C., arriving at Guanica July 27.

July 23 the Eleventh and Nineteenth United States Infantry; Batteries O and M, Seventh United States Artillery; Troop B, Second Cavalry; and Battery B, Fifth Artillery, making total of 80 officers and 2,831 enlisted men, under command of Brig. Gen. Theodore Schwan, United States Volunteers, sailed from Tampa, Fla., arriving at Ponce July 31.

July 23 the Philadelphia City Troop, Pennsylvania Cavalry; A and C, New York Cavalry; B, Pennsylvania Artillery; Twenty-seventh Indiana Light Battery; A, Illinois Artillery; A, Missouri Artillery; Troop H, Sixth United States Cavalry; Company F, Eighth United States Infantry, under command of Maj. Gen. John R. Brooke, United States Army, sailed from Newport News, arriving at Guayama July 31.

July 28 the Third Illinois Volunteer Infantry, Fourth Ohio Volunteer Infantry, and Fourth Pennsylvania Volunteer Infantry, making total of 145 officers and 3,581 enlisted men, under command of Brig. Gen. Peter O. Hains, United States Volunteers, sailed from Newport News, Va., arriving at Arroya August 3.

August 10 the First Kentucky Volunteer Infantry; Batteries A and C, Pennsylvania Volunteer Artillery; Sheridan's Troop, Pennsylvania Cavalry; Governor's Troop, Pennsylvania Cavalry, making total of 48 officers and 1,109 enlisted men, under command of Brig. Gen. F. D. Grant, United States Volunteers, sailed from Newport News, Va., arriving at Ponce August 16.

The strength present for July 31 and August 31 was as follows:

	Officers.	Enlisted men.
July.....	377	9,084
August.....	641	16,333

HAWAIIAN ISLANDS.

On July 7, 1898, Congress ratified and confirmed the cession of the Hawaiian Islands made by the Government of that Republic, and provided that the government of such islands shall be vested in such persons as the President of the United States shall select.

The First New York Volunteer Infantry and four companies of the Second United States Volunteer Engineers sailed July 29 for Honolulu, under command of Col. T. H. Barber, First New York Volunteer Infantry, 57 officers and 1,464 enlisted men arriving at destination August 17.

The subjoined table exhibits the strength and distribution of the Army of the United States:

RÉSUMÉ OF STRENGTH AND DISTRIBUTION OF TROOPS.

Command.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Department of California...	98	2, 176	87	1, 716	70	1, 745	100	2, 390
Department of Colorado...	45	956	39	1, 250	41	1, 329	40	1, 516
Department of Columbia...	21	431	38	997	41	1, 256	43	1, 416
Department of Dakota...	24	662	16	722	67	2, 056	32	955
Department of the East...	530	12, 093	566	15, 576	577	17, 240	804	23, 248
Department of the Gulf...	230	4, 921	232	5, 792	249	7, 223	280	7, 262
Department of the Lakes...	18	221	31	597	28	646	20	185
Department of the Missouri	23	757	20	591	20	598	19	522
First and Third Corps.....	2, 191	42, 036	2, 004	56, 544	1, 563	42, 260	438	12, 725
Second Corps.....	903	17, 406	867	22, 624	802	21, 378	768	20, 688
Fourth Corps.....	342	7, 456	763	20, 058	548	13, 485	413	9, 933
Fifth Corps.....	769	15, 657	791	14, 945	890	18, 619	518	14, 347
Seventh Corps.....	496	8, 847	781	18, 375	909	23, 193	1, 025	27, 817
Eighth Corps (Department of the Pacific).....	636	13, 179	865	22, 124	917	22, 536	899	22, 046
Porto Rico.....					377	9, 084	641	16, 332
Department of Santiago.....							299	6, 748
At State camps, en route, at recruiting stations, on furlough, etc.....	2, 089	33, 716	2, 227	20, 957	3, 861	74, 739	4, 771	95, 479
Grand total.....	8, 415	160, 514	9, 367	202, 868	10, 060	257, 392	11, 108	263, 609

CASUALTIES.

The following is a statement of the several actions in which United States troops were engaged during the war with Spain, and of the losses sustained by them from April 21 to August 13, 1898:

OPERATIONS IN CUBA.

May 12.—Point Arbolitos: Companies E and G, First Infantry, under Capt. J. H. Dorst, Fourth Cavalry. No casualties.

SIEGE AND SURRENDER OF SANTIAGO, JUNE 22 TO JULY 17.

[Maj. Gen. William R. Shafter, commanding Fifth Army Corps.]

June 24.—La Quasima: Cavalry division, Maj. Gen. Joseph Wheeler, commanding. Second Cavalry Brigade, Brig. Gen. S. B. M. Young.

Present for duty, June 20, 74 officers and 1,067 enlisted men. Killed, 1 officer and 15 enlisted men; wounded, 6 officers and 44 enlisted men.

Officers killed and wounded, 7. Killed: Capt. A. K. Capron, First United States Volunteer Cavalry. Wounded: Majs. J. M. Bell, First Cavalry, and A. O. Brodie, First United States Volunteer Cavalry; Capts. T. T. Knox, First Cavalry, and J. H. McClintock, First United States Volunteer Cavalry; First Lieuts. G. L. Byram, First Cavalry, and J. B. Thomas, jr., First United States Volunteer Cavalry.

July 1-12.—Operations against Santiago, embracing the actions at San Juan, El Caney, and Aguadores, July 1-3, and actions around Santiago, July 10-12. Present for duty, June 30, 858 officers and 17,358 enlisted men. Killed, 22 officers and 222 enlisted men; wounded, 93 officers and 1,288 enlisted men.

Officers killed and wounded, 122. Killed: Col. C. A. Wikoff, Twenty-second Infantry; Lieut. Col. J. M. Hamilton, Ninth Cavalry; Maj. A. G. Force, First Cavalry; Capts. C. W. Rowell, Second Infantry; A. M.

Wetherill, Sixth Infantry; John Drum, Tenth Infantry; T. W. Morrison, Sixteenth Infantry, and William O'Neill, First United States Volunteer Cavalry; First Lieuts. W. E. Shipp and W. H. Smith, Tenth Cavalry; J. G. Ord, Sixth Infantry; G. H. Field, Second Massachusetts Infantry; Second Lieuts. J. J. Bernard, Fourth Infantry; E. N. Benchley, Sixth Infantry; T. A. Wansboro, Seventh Infantry; L. H. Lewis, Ninth Infantry; W. A. Sater, Thirteenth Infantry; D. M. Michie, Seventeenth Infantry; J. A. Gurney and J. N. Augustin, Twenty-fourth Infantry; H. L. McCorkle, Twenty-fifth Infantry, and Acting Assistant Surgeon H. W. Danforth, who was on duty with Ninth Cavalry.

Wounded: Brig. Gen. H. S. Hawkins. Lieutenant-Colonels Henry Carroll, Ninth Cavalry; H. C. Egbert, Sixth Infantry; W. S. Worth, Thirteenth Infantry; J. T. Haskell, Seventeenth Infantry; E. H. Liscum, Twenty-fourth Infantry; J. H. Patterson, Twenty-second Infantry. Maj. H. W. Wessells, Third Cavalry; T. J. Wint, Tenth Cavalry; J. H. Smith, Second Infantry; A. W. Corliss, Seventh Infantry; S. H. Lincoln and R. I. Eskridge, Tenth Infantry; P. H. Ellis, Thirteenth Infantry, and W. O. Hayes, First Ohio Cavalry. Capt. H. L. Mills, A. A. G. Volunteers (first lieutenant, First Cavalry); G. K. Hunter and G. A. Dodd, Third Cavalry; J. B. Kerr and A. P. Blocksom, Sixth Cavalry; C. W. Taylor, Ninth Cavalry; John Bigelow, jr., Tenth Cavalry; C. D. Parkhurst, Second Artillery; W. J. Turner, Second Infantry; Z. W. Torrey and G. B. Walker, Sixth Infantry; J. B. Jackson, Seventh Infantry; R. C. Van Vliet, Tenth Infantry; James Fornance, J. B. Guthrie, and H. G. Cavanaugh, Thirteenth Infantry; William Lassiter, W. C. McFarland, and T. C. Woodbury, Sixteenth Infantry; H. B. Moon and J. B. Rodman, Twentieth Infantry; F. B. Jones, J. J. Crittenden, and Theodore Mosher, Twenty-second Infantry; A. C. Ducat and J. J. Brereton, Twenty-fourth Infantry; W. S. Warrenner, Second Massachusetts Infantry, and Capt. M. J. Henry, commissary of subsistence volunteers. First Lieuts. Arthur Thayer, A. C. Merrilatt, and O. B. Meyer, Third Cavalry; W. S. Wood, Ninth Cavalry; R. L. Livermore, E. D. Anderson, and M. H. Barnum, Tenth Cavalry; W. C. Neary, Fourth Infantry; J. S. Grissard, Seventh Infantry; J. R. Seyburn, Eighth Infantry; Carl Koops, Tenth Infantry; A. B. Scott, Thirteenth Infantry; S. W. Dunning, Sixteenth Infantry; W. M. Dickinson, Seventeenth Infantry; G. J. Godfrey, Twenty-second Infantry; H. G. Lyon and J. E. Brett, Twenty-fourth Infantry; R. C. Day and J. A. Carr, First United States Volunteer Cavalry. Second Lieuts. W. C. Short, Sixth Cavalry; F. R. McCoy, T. A. Roberts, H. C. Whitehead, and H. O. Williard, Tenth Cavalry; B. H. Wells and W. J. Lutz, Second Infantry; J. H. Hughes, Fourth Infantry; L. H. Gross, C. N. Purdy, John Robertson, R. S. Turman, and W. H. Simons, Sixth Infantry; H. A. Lafferty, Seventh Infantry; M. C. Saville, Tenth Infantry; W. E. Dove and Clark Churchman, Twelfth Infantry; L. S. Sorley and R. E. Spence, Sixteenth Infantry; B. F. Hardaway, Seventeenth Infantry; F. R. Meade, Twenty-first Infantry; W. H. Wassell, Twenty-second Infantry; Albert Laws, Twenty-fourth Infantry; J. S. Murdock and H. L. Kinnison, Twenty-fifth Infantry; D. J. Moynahan and C. D. Hapgood, Second Massachusetts Infantry; W. E. Trull, Seventy-first New York Infantry; D. J. Leahy and H. K. Devereaux, First United States Volunteer Cavalry, and Acting Second Lieut. (cadet M. A.) Ernest A. Haskell, First United States Volunteer Cavalry.

OPERATIONS IN PORTO RICO, JULY 25 TO AUGUST 12.

[Maj. Gen. Nelson A. Miles, commanding.]

July 25.—Guanica road: One officer and 3 enlisted men wounded.

August 5.—Guayamo: Four enlisted men wounded.

August 8.—Four miles north of Guayamo: Five enlisted men wounded.

August 9.—Near Coamo: Six enlisted men wounded.

August 10.—Hormigueros: One enlisted man killed; 1 officer and 15 enlisted men wounded. Officer wounded: First Lieut. J. C. Byron, Eighth Cavalry, A. D. C. to General Schwan.

August 12.—Pass near Arbonito: Two enlisted men killed; 2 officers and 3 enlisted men wounded. Officers wounded: Capt. F. T. Lee, Third Wisconsin Infantry, and Lieut. J. P. Hains, Third Artillery.

August 13.—At crossing of the Rio Prieto, near Las Marias: No casualties.

The total casualties in Porto Rico were 3 enlisted men killed and 4 officers and 36 enlisted men wounded.

OPERATIONS IN MANILA, PHILIPPINES, JULY 30 TO AUGUST 12.

[Maj. Gen. Wesley Merritt, commanding.]

July 30–August 5.—In the trenches before Manila: Thirteen enlisted men killed; 7 officers and 57 enlisted men wounded.

Officers wounded: Capts. O. V. Hobbs, Third Artillery, Reinhold Richter, First California Infantry, and J. A. Loar, Tenth Pennsylvania Infantry; First Lieuts. E. F. Davis, First California Infantry, and R. D. Laird, Tenth Pennsylvania Infantry; Second Lieuts. A. J. Buttermore and G. L. Gordon, Tenth Pennsylvania Infantry.

August 13.—Assault on Manila: Four enlisted men killed; 3 officers and 39 enlisted men wounded.

Officers wounded: Capts. Oscar Seabach, A. W. Bjornstad, and First Lieut. C. G. Bunker, Thirteenth Minnesota Infantry.

The total casualties in Manila were 17 enlisted men killed, 10 officers and 96 men wounded.

Grand total of casualties in killed and wounded during the war with Spain.

Where.	Killed.		Wounded.	
	Officers.	Enlisted men.	Officers.	Enlisted men.
Cuba	23	237	99	1,332
Porto Rico		3	4	36
Manila		17	10	96
Total	23	257	113	1,464

The number of deaths from all causes, between May 1 and September 30, inclusive, as reported to the Adjutant-General's Office up to October 3, were: Killed, 23 officers and 257 enlisted men; died of wounds, 4 officers and 61 enlisted men; died of disease, 80 officers and 2,485 enlisted men. Total, 107 officers and 2,803 enlisted men, being an aggregate of 2,910 out of a total force of 274,717 officers and men, or a percentage of 1.06.

Statement showing the embarkation of Spanish prisoners, officers, and enlisted men, and the wives of officers and their children over 5 years of age, priests, monks, and sisters of charity from Cuba to Spain, as reported to the Quartermaster-General's Office by Mr. Solon F. Massey, agent, Quartermaster's Department.

Name of vessel.	Where embarked.	Date of embarkation.	Officers.	Number of persons.						Total.
				En-listed men.	Total of army.	Wo-men.	Child-ren.	Priests and monks.	Sisters of charity.	
1898.										
Alicante.....	Santiago.....	Aug. 9	38	1,069	1,107	1	5	11	.....	1,124
Isla de Luzon.....	do.....	Aug. 14	137	2,056	2,193	16	24	4	.....	2,237
Covadonga.....	do.....	Aug. 16	109	2,148	2,257	34	45	.....	.....	2,336
Villaverde.....	do.....	Aug. 19	52	565	617	18	16	.....	.....	651
Isla de Panay.....	do.....	do.....	99	1,599	1,698	19	7	2	3	1,729
P. de Satrustegui.....	do.....	Aug. 22	128	2,359	2,487	31	37	.....	.....	2,555
Montevideo.....	do.....	Aug. 25	136	2,108	2,244	53	69	2	.....	2,368
Cheribon.....	do.....	Aug. 27	18	905	923	12	25	.....	.....	960
Colon.....	do.....	Aug. 28	100	1,316	1,416	36	23	.....	.....	1,475
Do.....	Guantanamo	Aug. 30	23	726	749	3	2	.....	.....	754
Leo XIII.....	do.....	Sept. 1	113	2,209	2,322	51	57	.....	.....	2,430
San Ignacio.....	do.....	Sept. 3	59	1,408	1,467	10	10	1	11	1,499
Leonora.....	do.....	Sept. 6	15	1,118	1,133	.....	.....	.....	.....	1,133
Ciudad de Cadiz.....	do.....	Sept. 12	53	.....	53	14	5	1	13	86
San Augustin.....	do.....	Sept. 17	65	800	865	24	21	.....	.....	910
San Francisco.....	do.....	do.....	18	588	606	9	2	.....	.....	617
Total.....	.....	.....	1,163	20,974	22,137	331	348	21	27	22,864

Principal camps of United States troops, dates of establishment, and number of deaths by disease, accidents, etc., at each to September 30, as reported to the Adjutant-General's Office.

Camps.	Date of establishment.	Deaths.
Camp Thomas, Chickamunga Park, Ga.....	Apr. 14	425
Camp Cuba Libre, Jacksonville, Fla.....	May 26	248
Tampa, Fla.....	May 2	56
Cuba (not including killed or died of wounds).....	June 22	427
At sea, en route from Cuba to Montank Point.....	Aug. and Sept.	87
Camp Wikoff, Montank Point, N. Y.....	Aug. 7	257
Manila, Philippine Islands.....	June 30	63
Porto Rico.....	July 25	137
Camp Alger, near Falls Church and vicinity.....	May 18	107
Camps in San Francisco.....	May 7	139
Camp Poland, Knoxville, Tenn.....	Aug. 21	23
Camp Shipp, Anniston, Ala.....	Sept. 3	12
Camp Meade, near Middletown, Pa.....	Aug. 24	64
Camp Hamilton, Lexington, Ky.....	Aug. 23	29
Camp Wheeler, Huntsville, Ala.....	Aug. 17	35
At posts, minor camps, etc.....	.....	378
Total.....	.....	2,485

CHARACTER OF ENLISTED MEN.

In assembling the regiments of the Regular Army at the beginning of the war with Spain the character of the enlisted men arrested attention. A distinguished foreign officer visiting the Fifth Army Corps at Tampa, remarked: "Every man looked fit to command." Their conduct on transports, on the march, in battle at El Caney, San Juan, and Santiago, gave abundant evidence that his good opinion was well placed. The officers and men by their valorous deeds and gallant conduct met the high expectation of the country.

The act of Congress approved August 1, 1894, providing for three-

year enlistments, did much to bring to the service a good class of men; the further provision of the act providing—

That no person (except an Indian) who is not a citizen of the United States, or who has not made a legal declaration of his intention to become a citizen of the United States, or who can not speak, read, and write the English language, or who is over 30 years of age, shall be enlisted for the first enlistment in the Army.

The enforcement of this law gave the country, small though it was, by common consent, the finest army the world has ever known. It is worthy of note that from the time the Fifth Army Corps left Tampa—June 14—until its return to Montauk Point—August 24—the commanding general was not called upon to order a trial of an officer or a soldier by general court-martial.

The new conditions will, however, make a modification of this statute desirable, to the end that the enlistment of from one company to a battalion of natives for each regiment serving in Cuba, Porto Rico, and the Philippines may be authorized. The advantage of this is too obvious for discussion.

THE RECRUITING SERVICE.

REGULAR ARMY.

During the past year the system of sending recruits enlisted at the various stations to regiments and posts with the least practicable delay has been adhered to as far as permitted by the changed conditions resulting from a state of war, and the departure of many regiments from the United States as integral parts of the expeditionary forces organized for service at different and distant points.

Prior to the existence of hostilities with Spain assignments were regularly made every ten days from the several recruiting stations and rendezvouses, and a very large portion of the men enlisted at city rendezvouses were sent direct from the places of enlistment to the posts where they were to serve.

When it became necessary to collect, at some convenient points, the recruits for regiments on foreign service, Fort McPherson, Ga., was selected as the rendezvous for the recruits destined for regiments serving in Cuba and Porto Rico, and the Presidio of San Francisco for those assigned to troops that had been sent to the Philippines. The exigencies of the service, however, having required that Fort McPherson be surrendered to the Medical Department for exclusive use as a general hospital, the recruits at that post were withdrawn to camps established in neighboring sections of Georgia, where those who could not conveniently be forwarded to their commands in the field accumulated, under the care of such officers as were available for the purpose. Most of the recruits for regiments in Porto Rico and the Philippines have now been forwarded to those places, while the recruits destined for the regiments withdrawn from Cuba have joined their respective commands.

The withdrawal of the garrison force of most of the military posts in the several geographical departments has, consequently, largely reduced the number of enlistments heretofore made at those stations, but in all cases where a commissioned officer was left with a detachment such post continued to be a general recruiting station.

The act of Congress approved March 8, 1898, provided for the organization of two additional regiments of artillery, thereby increasing the authorized enlisted strength of the Army by 1,610 men. Instructions were issued March 11, 1898, for manning these additional regiments, and their recruitment to the full number authorized by the above law of April 26, 1898, "for the better organization of the line of the Army

of the United States," which authorized the expansion of these and of all other regiments of the Regular Army to war strength. When Congress declared that war existed between the United States and Spain, orders were at once issued requiring that every proper effort be made by the several regimental commanders to recruit their respective commands to their legal strength on a war basis, and they were authorized to send out regimental recruiting parties for this purpose. At the same time instructions were given to general-service recruiting officers at posts and city stations, with a view to supplementing regimental enlistments by assignments of general-service recruits, each general-service recruiting officer being authorized to forward recruits to his own regiment to fill vacancies therein when requested to do so by his regimental commander.

While the two new artillery regiments were being recruited the number of enlistments increased from 725 in February to 1,439 in March and 2,085 in April. Under the stimulus of war, 25,500 enlistments were made for the Regular Army during the months of May, June, and July, notwithstanding the fact that during all this time the organization and recruitment of volunteers were actively progressing under the President's calls for 200,000 volunteers and the act of Congress, dated May 11, 1898, authorizing the organization of a volunteer brigade of engineers and an additional infantry force (immunes) of 10,000 men. By the end of August the Regular Army, exclusive of the Hospital Corps, had been recruited to an enlisted strength of about 51,000 men.

Most of the regular infantry and cavalry regiments were included in the expeditionary forces sent out of the United States. This fact and the scarcity of line officers (many of whom were necessarily engaged in mustering volunteers, or had received staff appointments in the Regular Army, or had been commissioned in the volunteer force) made it not always practicable for regimental commanders to comply fully with the instructions given them for recruiting their respective regiments. Those, however, who were able to detail a number of recruiting officers soon had their commands filled to the maximum strength. The need of artillery officers with their regiments was so great that the recruitment of those regiments was seriously interfered with.

In April, 1898, there was but 1 special regimental recruiting station in operation; in May there were 126 stations in operation during the whole or a portion of that month; in June, 120; in July, 85, and in August the number was reduced to 58.

A lack of officers for the purpose prevented, also, any considerable increase in the number of city recruiting stations of the general service. The number of such stations in October, 1898, was 15; in April, 1898, it was increased to 22, and this number has been about the average since that date. Recruiting officers at some of these stations have conducted branch stations or have been ordered, from time to time, to other points for the purpose of making enlistments. Instructions have been given for opening 6 additional recruiting stations, to be in charge of artillery officers.

The total number of enlistments and reenlistments in the Regular Army during the fiscal year ending June 30, 1898, exclusive of the Hospital Corps, was 29,521, classified as follows:

For the general service.....	19,988	
For the special recruiting service.....	9,219	
		29,207
For staff departments.....		314
Total.....		29,521

Of the 29,521 accepted applicants, 24,490 were native born and 5,031 of foreign birth; 27,140 were white, 2,345 colored, and 36 Indians (scouts). The enlistments numbered 24,248, and the reenlistments, 5,273. Excluding reenlistments, the percentage of native-born applicants for original enlistment was 87, the balance being naturalized citizens. The reports show that the recruiting officers making the 29,207 enlistments embraced in the first two items of the foregoing list rejected 18,277 applicants—a little over 77 per cent of the number seeking enlistment—as lacking in legal, mental, and moral or physical qualifications; 5,209 of these were rejected as aliens, and 4,788 for illiteracy.

VOLUNTEER ARMY.

Under and in pursuance of the President's proclamation of May 25, 1898, calling forth volunteers to the aggregate number of 75,000, and of section 7 of the act of April 22, 1898, providing that no new organizations shall be accepted into the service from any State unless the organizations already in service from such State are as near to their maximum strength as the President may deem necessary, general rules were formulated for accomplishing the objections of said proclamation and were published in General Orders, No. 61, dated June 1, 1898.

These instructions provided for recruiting to maximum strength the volunteer organizations already accepted and mustered into the service of the United States, excepting the organizations from certain States and Territories that had already received, under the President's first call, an apportionment to the extent of their combined quotas under the first and second calls.

Recruiting parties from the various volunteer organizations were sent to the localities where the troops had been raised, enlistments being also made at State camps and in the field, and recruiting progressed rapidly, with the result that the greater number of these organizations were rapidly filled prior to the signing of the protocol as a basis for negotiations looking to the reestablishment of peace between the two countries.

Following this action, instructions were given to suspend volunteer recruiting, except the enlistment of cooks, under the provisions of the act of July 7, 1898, for the organizations to remain in the United States service.

The total number of individual volunteer enlistments made is slightly over 40,000.

BREVETS AND MEDALS OF HONOR.

In obedience to your instructions, a board of officers will be convened at an early day to examine with care all recommendations for brevets and medals of honor for services in Cuba, the Philippines, and Porto Rico. It is expected by this means that all deserving cases will be brought to the attention of the President.

INCREASE OF THE REGULAR ARMY.

The organization of the cavalry, artillery, and infantry regiments has stood the test of trial in battle and received the approval of those in command; so that the increase of the line of the Army, demanded by our new possessions, should be by the addition of the necessary number of regiments organized as are those now in service. The number of officers should be increased by one first lieutenant to each troop, battery, and company. This would enable the Department to meet the demands for various details required by law and yet leave the troops

with the necessary number of officers for their proper discipline and instruction, and in war allow the appointment of sufficient generals and general staff officers, without destroying the efficiency of the Army, as threatened by the recent experience of the Department. The number of trained officers as herein provided for at the beginning of the present war would have saved lives and treasure, to say nothing of the increased efficiency of the service. At the beginning of the present war some 400 officers were appointed to the staff and volunteer regiments. With these, and for aids to the generals and other duty absolutely required for the conduct of the war, absent from their commands, the regiments were sent to battle with scarcely more than one officer to the company. It is difficult now, with the sick and wounded officers, for the Department to get one officer to the company, and too frequently there have been two companies with but one officer. The increase proposed would in no way give a greater number of officers than required.

By the date fixed for the assembling of Congress, the Department will, under your direction, be prepared to submit a bill providing for the increase of the Army.

Officers serving in the West Indies and the Philippines will, as a rule, be separated from their families and their living expenses greatly increased. It is recommended that all officers below the rank of major, while so serving, shall have the pay and allowance of the next higher grade.

GENERAL OFFICERS.

The requirements of probable service in Cuba and elsewhere call for an increase of general officers in the permanent establishment. There should be at least an increase of two major-generals and four brigadier-generals. Provision for the grade of lieutenant-general is called for by the best interests of the public service.

THE MILITIA.

The cordial relations which justly exist between the Regular Army and the National Guard of the several States have led, in past years, to the detail of such officers of the Army as could be spared for duty with the State forces at their annual encampments, etc. This course was necessarily interrupted by the war with Spain, but it is hoped will be resumed, with continued mutual benefit, in the near future.

The necessary reorganization of the militia of the several States, resulting from the temporary withdrawal of nearly 200,000 of these troops for active duty in the service of the United States, and the deep interest felt in the welfare and efficiency of the National Guard, prompts the suggestion of the following thoughts for the consideration of the military authorities and legislatures of the several States:

The readmission into the National Guard of the State organizations which volunteered their services to their country is a question having but one possible answer—to refuse admission, when desired, would practically punish men for their patriotic response to the call of the General Government.

While the yearly State encampments have been productive of positive good in imparting practical instruction to the troops participating, the experience of the recent campaign has demonstrated the absolute necessity of further assimilating the condition of encamped troops to the actual necessities of active service by making the men while in camp dependent for their subsistence on the army ration to be furnished

by the State authorities, on ration returns, and cooked by the troops in precisely the same manner as on actual service in the field. An organization ordered to a State camp for military instruction, relying on a caterer to furnish the necessary food, can never acquire that self-reliance which characterizes the regular soldier on active duty, for without previously received instruction in preparing food the natural result when called into service will be poorly cooked and wasted rations, which failing to strengthen the physical man, make him liable to febrile and stomachic troubles incident to service in all kinds of weather, under distressing but unavoidable conditions.

For this purpose, involving the issue of rations and the purchase of field cooking stoves and utensils, the annual appropriation made by Congress for the support, in part, of the militia is totally inadequate, and its increase, urged in past years, has now become a necessity.

POST-GRADUATE SCHOOLS.

The necessity of post-graduate schools for officers of the Regular Army has been thoroughly established, and the practical instruction obtained in all of them has been growing more and more valuable each year.

The total special appropriations for these schools amount only to the meager sum of \$8,500, which is insufficient for the purchase of even a modest allowance of the instruments and technical books required in them. The special attention devoted to practical instruction in reconnaissance, field engineering, minor tactics, outpost duty, etc., has given the young officers of the Army a better insight into these absolute essentials to successful warfare than any amount of individual theoretical study would have done.

INFANTRY AND CAVALRY SCHOOL, FORT LEAVENWORTH, KANS.

The war requiring the concentration of the Regular Army at different points in the South, most of the student officers were relieved and ordered to join their respective regiments. No complete synopsis of the work done during the year can therefore be given. It is recommended that an increase be made in the allotment of funds for the purchase of instruments and books necessary to keep the school abreast of the requirements demanded. The assignment of a light battery at the school is also deemed essential to the proper conduct of practical field exercises in conjunction with other arms.

ARTILLERY SCHOOL, FORT MONROE, VA.

The operations of this school were temporarily suspended and the senior class graduated on March 18. The positive value of the course in steam and mechanism is yearly made more evident, both by the increased interest manifested and by the results accomplished. Systematic instruction in the principles of mechanics is an essential part of the education of artillery officers, modern guns and carriages being complicated machines, requiring sometimes pneumatic and steam plants to operate them. The laboratory of the department of chemistry and explosives is thoroughly organized, and very fully equipped for its special work. The interruption of the exercises of the school, and the assignment to the artillery arm of many young officers who have had no opportunity for the necessary preliminary instruction, renders the present an opportune time for the thorough reorganization of the school along the general lines indicated in the scheme heretofore submitted by the school staff.

CAVALRY AND LIGHT ARTILLERY SCHOOL, FORT RILEY, KANS.

The departure in March last of the three light batteries for the Department of the Gulf, and on April 19 of the cavalry troops at the school for Chickamauga Park, left but a small force at the post for the care and preservation of the public buildings and property. The absence in the field of the directors has prevented any detailed reports of the operations of the school.

The work of the Cavalry and Light Artillery School at Fort Riley is almost entirely practical, and the one thing required to make this one of the most valuable schools for the Army is the presence of a larger garrison. There is a magnificent military reservation at the site of this school, and the climate of the locality is well adapted to the work in hand. The bringing together of a large number of troops, especially of the mounted arm, on this reservation will afford practical instruction to the student officers who compose the garrison as a part of the organizations on duty there, and can not fail to be of the utmost value to the Army in the future.

The recent addition to the Army of a large number of young officers appointed direct from civil life, without previous military education, will necessitate a very careful course of instruction for all of them in the near future at these schools. The difficulty of securing at this time instructors, as well as of sparing the officers from their regimental duty, will prevent the establishment of the schools before the next regular session, but the complete rehabilitation of these several schools at the earliest practicable moment is of the greatest importance, and is recommended.

POST LYCEUMS.

While the regular course at the posts in several military departments was of necessity interrupted by the preparations for war, the reports received indicate that the general purpose in establishing the post lyceums seems to have been accomplished.

It is quite a well-established fact in the minds of conservative and thoughtful line officers interested in the welfare of the service that, while those lyceums have been useful, they have not produced all the results anticipated. There are various reasons for this, but it is hoped that in the near future the lyceums may be made more interesting and valuable, while at the same time relieving them of any features which have heretofore been instrumental in preventing the success which was anticipated when they were originally established. There can be no question that the assembling of the officers of the various posts for discussion of professional subjects must redound to the great benefit of the young officers of the service. In many of the essays read, on subjects selected by the writers, there has been a manifestation of zeal and research which is most creditable.

POST SCHOOLS.

The operation of post schools has been necessarily interrupted by the movement of troops resulting from the war with Spain. It is a question at this time whether or not these schools should be continued. The ineligibility under the law of illiterate men for enlistment in the Army and the general intelligence of men now in the ranks point out the necessity of discontinuing the present elementary and more or less

defective course. Systematic instruction in all of the duties of a soldier could well be supplemented by teaching the preparation of reports and returns, typewriting, and many other useful and necessary things which do not form a part of the ordinary daily drills. There have been a few cases of successful accomplishment of the work in post schools, but, as a whole, the opinion of the line officers has been against the continuance of them for many reasons which have been developed during the progress of attempted instruction at the various posts. The voluntary attendance of grown men in schools is always so limited and uncertain that little interest can be taken in the instruction by those in charge. With enlistments limited to three years, it is a question whether any time should be devoted to teaching rudimentary studies.

It is suggested that an enlargement be made of post libraries at permanent posts, thus affording increased facilities to studious and ambitious noncommissioned officers and men for individual improvement.

ADJUTANT-GENERAL'S DEPARTMENT.

On February 25, 1898, Brig. Gen. Samuel Breck, an officer of high order of ability and of long and faithful service, was retired under the provision of the law. On the same date the undersigned succeeded to the office of Adjutant-General. The vacancy in the junior grade, caused by this promotion, was filled by the appointment of Maj. George Andrews (captain Twenty-fifth United States Infantry).

The promotions of Lieut. Col. Theodore Schwan, to be colonel, and Maj. William H. Carter, to be lieutenant-colonel, resulting from the act of May 18, 1898, temporarily increasing the strength of the Adjutant-General's Department by one colonel and one major, created two vacancies, which were filled by the appointments of Maj. Charles H. Heyl (captain Twenty-third United States Infantry) and Maj. John A. Johnston (captain Eighth United States Cavalry), while the vacancy resulting from the subsequent transfer of Major Heyl to the Inspector-General's Department was filled by the appointment of Maj. William A. Simpson (captain Second United States Artillery).

Five of the officers of the Department, viz, Cols. Michael V. Sheridan, Theodore Schwan, and Lieut. Cols. Arthur MacArthur, John C. Gilmore, and John B. Babcock, have been appointed brigadier-generals of volunteers. General MacArthur, for distinguished services in the battle of Manila, has been promoted to major-general of volunteers.

THE MILITARY INFORMATION DIVISION.

The assignment in May last of Lieut. Col. Arthur L. Wagner, assistant adjutant-general, the chief of the division, for active duty on the staff of the Major-General Commanding the Army, and the relief of most of the line officers heretofore on duty in that branch of the Adjutant-General's Office, devolved the conduct of its business in its numerous ramifications on Capt. Louis C. Scherer, assistant adjutant-general of volunteers, assisted by Second Lieut. Walter C. Babcock, Eighth Cavalry. The capacity and intelligence and industry they have shown in the performance of responsible and important duties are fully recognized.

The following is a list of the publications of the military information division since those enumerated in the last annual report from this office:

- No. 15. The Autumn Maneuvers of 1896 in Europe.
- No. 16. Part 1, Subsistence and Nursing in European Armies; part 2, Cavalry Pioneer Tools and High Explosives; part 3, Extracts from the New Drill Regulations (edition of 1896) of the Russian Cavalry, translated by Lieut. L. C. Scherer, Fourth Cavalry.
- No. 17. Sources of Information on Military Professional Subjects.
- No. 18. Selected Professional Papers, translated from European publications.
- No. 19. The Organized Militia of the United States in 1897.
- Military Notes on Cuba.
- Military Notes on Porto Rico.
- Notes on Centa.
- Notes and Tables on Organization and Establishment of the Spanish Army in the Peninsula and Colonies.
- List of Battle Ships, Cruisers, and Torpedo Boats of the Spanish Navy.

In addition to the above, there have been published monthly lists of the military publications—books, pamphlets, etc.—received in the Adjutant-General's Office, with dispatch blanks and envelopes, and road and position blanks.

There remain in course of publication—

- No. 20. Military Notes on the Philippines.
- No. 21. Revised Cuban Notes.

In the map section, in addition to various maps and sketches, etc., prepared for the publications noted above, the following work has been accomplished:

Published—

- Maps of the Island of Cuba, scale 1:500,000, 4 sheets; scale 1:500,000, 8 sheets; scale 1:250,000, 4 sheets; scale 1:250,000, 8 sheets.
- Map of Havana province, scale 1:100,000.
- Havana city and vicinity, scale 1:18,000.
- Map of the Philippines, scale, approximate, 1:810,285.
- Map of Luzon, scale, approximate (with plan of Manila), 1:550,000.
- Map of province of Cavite, scale 1:135,000.
- Map of Porto Rico, scale 1:253,440.

In press—

- Map of Porto Rico, scale 1:126,720.
- Map of Centa, scale 1:8,000.

Completed—

- Bird's-eye view of San Juan and vicinity; Fajardo and vicinity; Santiago and vicinity.
- Port of the province of Santiago de Cuba, scale 1:100,000.
- Map of Mindanao, scale 1:800,000.
- Sketch map of the country between Sarecti Spiritus and Tunas de Zaza, Santa Clara Province, Cuba, scale 1:65.
- Map of northeastern portion of Porto Rico, scale 1:63,360.
- Map of Sagua La Grande, scale 1:124,706.

In preparation:

- Map of the Canary Islands, scale 1:100,000.
- Map of the Hawaiian Islands, scale 1:60,000.
- Map of Cuba from Mariel to Cardenas, scale 1:63,360.
- Map of the battle field of Antietam, scale 1:10,560.
- Map of Egypt and the Egyptian Soudan, scale 1:8,000,000.
- Bird's-eye view of Havana and vicinity.

In connection with the work of the office in making and distributing maps of Cuba, Porto Rico, the Philippines, etc., a photograph room was established early in 1898, with Second Lieut. W. O. Babcock, Eighth United States Cavalry, in charge. This room has added to the efficiency of the office, and is found to be as cheap and far more satisfactory than having the work done as heretofore, by contract.

MILITARY ATTACHÉS.

The number of military attachés at the several United States embassies and legations abroad is as follows:

In Europe (London and The Hague).....	2
Mexico, South America, etc.....	5

The military attachés at St. Petersburg, Russia, and Berne, Switzerland, were relieved during the past year and, at their urgent solicitation, seven others have been recalled to the United States for active service in the Army.

Recent events have demonstrated that our geographical isolation does not exempt us from foreign war, and that to neglect the employment of every known expedient for keeping abreast of the world's progress in the military art would be neglect of what is due the best interests of the people. Our traditional policy forbids the maintenance of a larger army than is necessary for our national security and dignity; but common prudence demands that our peace establishment, whatever its size, shall be as perfect, both as regards its personnel and material, as it is possible to make it. To bring about and to preserve such a state of excellence requires constant effort. Not only our own experience in the marches, campaigns, and battles, and in the armament and equipment of troops, but that of other nations as well, should be the test of the sufficiency of existing methods and pave the way for needed improvements. Hence, a constant comparison by experts of our military system, in all its details, with the ways and means in vogue in foreign military services, is desirable.

These considerations suggest care in the selection of the officers who are sent abroad to collect military information and attached for that purpose to our embassies and legations. To find officers who meet the requirements of these positions is often a matter of great difficulty. Not only a sufficient professional equipment, but other qualities, and also sufficient pecuniary means to enable the attaché to sustain his representative character, are essential; hence increased rank and allowance, so that an officer without a private fortune can afford to fill such detail. Then, too, it must be borne in mind that the consideration, personal and official, which such an officer receives abroad depends largely upon his rank. The exigencies of our service, in which promotion is slow, have repeatedly constrained the War Department to detail first lieutenants for this duty. The embarrassment, amounting in some cases to humiliation, though entirely unintentional, to which such officers have been subjected on account of their low rank as compared with that of their colleagues, many of whom represent the smaller nations, and not infrequently their junior in years, are cogently set forth in your report for the year 1897, and also in the report of the Senate Committee on Military Affairs (No. 547, Fifty-fifth Congress, second session), which accompanied a bill recommended by the committee for remedying the difficulties mentioned. The bill referred to gives the officer serving as military attaché to an embassy, while so serving, the rank, pay, and emoluments of a colonel and of a major to one attached in a like capacity to a legation. It is requested that you renew your efforts to induce Congress to enact this or a similar measure at its coming session. The field from which officers intrusted with duties of such importance can be chosen would thus be materially widened and the efficiency of the public service promoted.

THE MILITARY ACADEMY.

Col. O. H. Ernst, of the Corps of Engineers and Superintendent of the Military Academy, having been commissioned a brigadier-general of volunteers and assigned to duty with the Porto Rican expedition, the President, on August 22, 1898, under the provisions of section 1313 of the Revised Statutes, appointed First Lieut. Albert L. Mills, First United States Cavalry, as Superintendent of the Military Academy at West Point. The selection of Colonel Mills was a merited recognition of the gallantry and soldierly bearing of this officer in the campaign which terminated in the surrender of Santiago, where he was severely wounded.

In view of the great demand for officers for active duty in the field, the class of 1898 was graduated on the 26th of April and its members ordered to join the regiments to which they had been assigned as second lieutenants. As the exigencies of the service have deprived these young officers of the usual leave granted to cadets on graduating, it is recommended that this indulgence be granted them as soon as the demands of the service will permit.

The number of cadets at the Military Academy September 1, 1898, was 325, or 46 below the legal organization. From various causes there will be, undoubtedly, many more vacancies before the end of the academic year, and the Board of Visitors for some years past have united in the recommendation of the Superintendent of the Academy that the number of cadets (371) authorized by law be increased, there being sufficient instructional and barrack facilities. It is recommended that the number of yearly Presidential appointments be increased to 20, and that two appointments at large be nominated by the Senators representing each State of the Union.

The enlargement and remodeling of the library building is a pressing necessity, and under authority of a former Congress full plans, specifications, and estimates have been prepared, and attention is invited to the need of this work, in order that the full amount of the estimate submitted be allowed and made available at an early day.

The Military Academy Band, now the only Army band directly supported by the Government, should be restored to its status, as to numbers and pay, prior to 1877, when it was reduced. It is recommended that it be made to consist of 1 leader and 40 enlisted men, 10 of whom to receive \$34 per month and the others \$30 per month, with the allowances of other enlisted men; the leader of the band to be given the pay and emoluments of a second lieutenant of infantry. These musicians have no facilities for increasing their present meager compensation by engagements away from the post, and it is, therefore, extremely difficult, if not almost impossible, to obtain accomplished musicians for this band.

The position of assistant librarian at the Military Academy imposes onerous duties and demands intelligence of a high order, joined to indefatigable industry, and therefore there commendation of the Superintendent that the salary of the officer be increased from \$1,200 to \$1,500 is concurred in.

Under section 6 of the act of April 22, 1898, which provides "that in time of war no additional compensation shall be allowed to soldiers performing what is known as extra or special duty," the extra pay of the men of the Army service detachment at West Point was discontinued. As these men were enlisted not for duty as soldiers, but for the performance of specified work, for which, at the time of their enlist-

ment they expected to receive the additional compensation provided for in the appropriations for the support of the Military Academy, the recommendation of the Superintendent that it be restored to them not only in the future but also for the period of the war with Spain, is concurred in. It would be far better if this detachment was done away with and the men be hired as laborers by the Quartermaster's Department. These men care for the horses of the cadets, giving these young gentlemen wrong impressions of the duties and dignity of the soldier.

The use of the same horses for both saddle and draft purposes at the Military Academy is unavoidable at present, but as such use unfits them for cavalry and artillery instruction there should be provided 48 artillery horses and a detachment of artillery for the sole purpose of battery instruction, and it is so recommended. As an object lesson for the cadets, the establishment of a post consisting of not less than two troops of cavalry and one battery of light artillery at the Military Academy is recommended.

It is strongly urged for obvious reasons that all of the obsolete and unserviceable artillery material in the siege and seacoast batteries of instruction be replaced by modern guns, and that the field battery be increased from four to six guns, as the present battery of instruction (four 3.2-inch guns) is inadequate for the standing gun drills of the fourth class, which averages 100 cadets.

The discipline of the cadets is excellent, and the moral tone of the Academy all that could be desired.

MILITARY COLLEGES.

The declaration of war with Spain was immediately followed, almost without exception, by requests for active duty on the part of the officers detailed at the several universities and colleges as professors of military science and tactics, and resulted in the cessation of military instruction at these institutions. In view of the positive benefits to the youths of the land accruing from a systematic blending of military instruction with the usual curriculum of academic studies, cultivating as it does habits of obedience to authority and fostering manliness of deportment and habits, the importance of college details can not be overestimated, and their early resumption is recommended as soon as can be with due regard to the interests of the troops in the field.

PAY OF NONCOMMISSIONED OFFICERS.

While all military men recognize more and more the great value in regimental and company organizations of thoroughly efficient noncommissioned officers, and have deplored the fact that the very slight increase of the pay of that valuable class over that of the men in the ranks is totally inadequate when their duties and responsibilities are considered, no legislative action—excepting the case of first sergeants, whose pay was increased in recent years to \$25 per month—has been obtained to provide such reasonable rates for the several grades of noncommissioned officers as would offer substantial inducements to men in the ranks of superior intelligence and qualifications to strive for these positions. Indeed, it has often happened that regiments and companies have suffered the loss of efficient noncommissioned officers by reason of the extra duty pay (suspended in war times) provided and given by the supply departments.

It is therefore recommended that the attention of the Congress be called to the importance of a well-directed measure that will embrace

all grades of noncommissioned officers of the line, from sergeant-major to corporal.

The selection of suitable men for appointment as noncommissioned officers is a duty upon which depends much of the efficiency of the command; they are to be in immediate contact and control of the men, and the measure of success in the military administration of each command depends largely upon their character, capacity, integrity, energy, and soldierly qualities.

It is suggested whether the best results would not be attained by substituting for the present method of appointment of noncommissioned officers—largely a matter of personal preference—one that, being based on the result of competitive examination by military boards, would more fully develop the physical, moral, and professional fitness of the men offering themselves as candidates, the regimental and company commanders retaining the power of selection, which, however, would be limited to a class of eligibles.

The adoption of this course would, it is thought, awaken the ambition of men in the ranks capable of qualifying, and, by inducing them to select the profession of arms as their future career, secure to the Army a highly trained and thoroughly efficient noncommissioned class; and capable, in time of war, of furnishing good material for volunteer officers.

ARMY BANDS.

The present organization of regimental bands consists of 1 chief musician authorized by law and of 1 sergeant and 20 privates detailed for the purpose because possessing more or less musical ability, but who are, nevertheless, instructed as soldiers and subject to be called on for duty in that capacity. The band is of no expense to the Government other than the cost of instruments and music, being maintained by part of the savings of rations, a small percentage of the profits of the post exchanges, with occasional earnings from private engagements with parties in civil life. This last source of support involving competition with civilian musical organizations, is therefore objectionable and has been kept down; but it has been found impossible to secure first-class musicians for the pay of the private soldier.

This question is one deserving Congressional action. Music has become necessary to the health and well-being of the soldier.

In view of the above faulty organization and lack of proper compensation, it is recommended that regimental bands be increased to at least 30 men, enlisted as "Band musicians," and given the following organization and rates of pay, viz:

1 chief musician	\$75.00
2 principal musicians	50.00
10 first-class musicians	35.00
17 second-class musicians	25.00

At this rate of pay young men of intelligence and character, who desire to make music a profession, would seek positions in our military bands.

CLERICAL DUTY IN THE ARMY.

The general-service corps created in 1886, subject only to assignment for clerical and messenger duty at the headquarters of the Army, as well as at those of the several geographical departments, and arbitrarily divided, as to the clerks, into three grades, receiving, respectively,

\$1,200, \$1,100, and \$1,000 per annum, was superseded, under the provisions of the act of August 6, 1894, by a civilian force placed under civil-service rules. This change operated to deprive the general-service clerks of the privileges of medical attendance, of purchase from the commissary and quartermaster's department, and of retirement, while their pay remained at the rate indicated. This rate of compensation is lower than that allowed to clerks in the supply departments at the same headquarters, works injustice to a meritorious class of men, and great hardship when called on—as has happened—to accompany to the field the commander of the military departments at whose headquarters they had been assigned to duty.

It is recommended that this force be brought under the general classification established by the act of March 3, 1853, as amended by the act of April 22, 1854, which governs the classification of clerks in the several Executive Departments, with the addition of a class at \$1,000. The chief clerk at the headquarters of the Army should be a clerk of class 4, those at the headquarters of important departments of class 3, and at all other department headquarters of class 2. It is further recommended that, in times of active service, this force be increased to 200 men, by selection of suitable men from regiments, to enable the War Department to assign trained and competent clerks to the several corps and divisions in the field. The detail for clerical duty at these important headquarters of untrained men most seriously hampers the commanding general and the adjutant-general of the command, results in delayed and imperfect returns, and necessarily increases the work of this office.

GOVERNMENT HOSPITAL FOR THE INSANE.

The following is a list of persons committed to the Government Hospital for the Insane, under the orders of the Secretary of War, from September 1, 1897, to September 1, 1898:

Officers of the United States Army	3
Enlisted men of the United States Army	51
Enlisted men of the United States Army (retired)	2
Late soldiers of the United States Army	5
Total	61

THE ADJUTANT-GENERAL'S OFFICE.

The legal organization of the clerical and other force of the office has remained unchanged during the past year, but the tremendous increase of business immediately following the declaration of war with Spain made an additional force necessary, for which, and its subsequent increase, Congress made suitable provision in the acts of May 31 and July 7, 1898. The number of the temporary clerks appointed in this office steadily increased, and is now 141, largely composed, since the cessation of hostilities, of men from the Regular and the Volunteer Army, who, being found possessed of the requisite qualifications, were thus partially rewarded for the trials and hardships endured by them in the service.

The calls of the President for 200,000 volunteers almost overwhelmed the office with tenders of service from all parts of the country, while thousands of applications for staff and other positions taxed to the utmost the physical endurance of the force, which, regardless of hours, labored with a gratifying degree of success considering the serious

inconvenience resulting from crowded rooms and the growing insufficiency of space for the office records and files. This last condition has been improved from time to time by the assignment of additional quarters:

The muster in of the large Volunteer Army called into the service of the Government in April and May of the present year, and the orders, less than five months afterwards, for mustering out 100,000 men, present an unexampled condition of affairs which sufficiently indicate the many difficulties under which this office has labored. It is estimated that, from May to August, 4,000,000 blank forms and returns were distributed to the Army from Maine to Manila, and the number of packages of blanks and record books put up and forwarded exceeded 15,000.

A serious drawback to business was the nonreceipt at this office of the prescribed returns of the troops, delaying and in many instances preventing satisfactory response being made to the numerous inquiries received daily from all sections of the country.

Of the officers of this Department, six have been appointed general officers of volunteers, five are now serving as brigadier-generals, and one as major-general of volunteers; two others, Lieutenant-Colonel Wagner and Major Barry, served with troops in the field. To those serving in the office—Col. Thomas Ward, Col. Theodore Schwan (brigadier-general of volunteers), Lieut. Col. William H. Carter, Maj. H. O. S. Heistand, and Maj. John A. Johnston—acknowledgment of their devotion, faithful and intelligent performance of duty under trying conditions is freely made. The service contains no more deserving public servants.

To assist in the organization of the volunteer troops, Capt. James S. Pettit, First United States Infantry, and First Lieut. Herbert H. Sargent, Second United States Cavalry, were called to temporary duty in the office and rendered excellent service.

The uniform courtesy and cooperation of the heads and officers of other staff departments are gratefully recognized. It is worthy of note that under all the trying conditions through which the Department has passed there has not been a sign of discord. All have vied with each other in an intelligent and faithful performance of duty. The clerical force of the office has been no less diligent and faithful, and richly deserve recognition due the most meritorious. To Mr. W. S. Coursey, confidential clerk to the Adjutant-General, special acknowledgment is made.

To you, sir, for your uniform courtesy and consideration, sincere thanks are gratefully rendered.

H. O. COEBIN,
Adjutant-General.

The Honorable
The SECRETARY OF WAR.

APPENDIX.

WAR DEPARTMENT, April 22, 1898.

The following instructions to mustering officers are approved and will be strictly observed.

R. A. ALGER, *Secretary of War.*

DETAIL OF MUSTERING OFFICERS, ETC.

1. Only officers of the Regular Army (except in case of necessity) will be detailed to muster troops into and out of the service of the United States, and no officer will make such musters unless detailed for that duty by the War Department.

2. For all musters of troops *in the field* a mustering officer will be detailed by the department or corps commander for their respective commands, and also one for each division or district. All rolls and communications sent to and from officers on this duty at division or district headquarters will be through the office of the mustering officer of the department or corps, who will exercise a supervision over the whole subject of the musters of the command.

As soon as the mustering officers are detailed as herein directed their names will be reported to the Adjutant-General of the Army.

Mustering officers are empowered to administer oaths in all matters pertaining to enlistment and mustering of volunteers.

3. Each mustering officer of a district or division will report without delay to the mustering officer at the next superior headquarters all musters made by him, forwarding two copies of the muster-in and four copies of the muster-out rolls, and delivering the third and fifth copies, respectively, to the individual officers or company commanders concerned. These rolls and reports will be forwarded by the mustering officer of a department or corps, who will add his own report of such musters as he may have made and forward them, with one copy of the muster-in and muster-out rolls, in each case, direct to the Adjutant-General of the Army, disposing of the other copies of the rolls as prescribed in the directions printed on the blanks for muster in and out rolls.

4. Mustering officers will not be relieved from this duty or transferred to another command without authority from the War Department.

MUSTERING IN A REGIMENT OR OTHER FORCE.

5. An officer who is appointed to make a muster of any force into the service of the United States, on arriving at the place designated in his instructions, will, if the name of the commander and captains be not given in his order, obtain the information from the proper authority, generally from the executive of the State. And he must be satisfied that the whole number of companies for the designated command are present or on their way there, with organization complete, unless otherwise directed, before he commences the muster.

6. The organization of regiments, battalions, and companies of volunteers or militia will be as authorized by law, or by regulations made by the War Department, of which the mustering officer and all concerned will be duly advised by the Adjutant-General of the Army.

7. Field and staff officers of regiments may be mustered into service upon completion of the organization of regiments or companies, as follows:

Cavalry.—Colonel and chaplain—when an entire regiment is organized. Lieutenant-colonel—when six troops are organized. Majors—one for every four troops.

Artillery.—Colonel and chaplain—when an entire regiment is organized. Lieutenant-colonel—when six batteries are organized. Majors—one for every four batteries.

Infantry.—Colonel and chaplain—when an entire regiment is organized. Lieutenant-colonel—when six companies are organized. Major—when four companies are organized.

Engineers.—Colonel and chaplain—when an entire regiment is organized. Lieutenant-colonel—when six companies are organized. Majors—one for every four companies.

During the organization of a volunteer regiment, the adjutant, quartermaster, and, when absolutely necessary, the medical officers thereof may be mustered into service, to aid in recruiting the regiment, and for the prompt transaction of all other public business. The noncommissioned staff will in no case be mustered in till the regiment is complete.

8. After a regiment has been mustered into service no commissioned officer will be mustered in before producing a commission from the governor of his State. After the commission has been exhibited the mustering officer will satisfy himself that a vacancy exists, in which case only can he make the muster. The muster-in roll must show, over the certificate of the mustering officer, that the vacancy existed, and how it occurred. For example, if the vacancy resulted from death, the remark will be, "vice Captain —, deceased;" if from resignation, "vice Lieutenant —, resigned."

9. When volunteers are to be mustered into the service of the United States, they will be minutely examined by a medical officer of the Army detailed for that purpose, when practicable, to ascertain whether they have the physical qualifications necessary for the military service. Medical officers before being mustered into the service of the United States will be required to pass a satisfactory examination as to character and professional ability before a board of Army or civilian surgeons, or both, designated by the Surgeon-General of the Army. If there be no medical officers, duly appointed, present, the mustering officer, on consultation with the regimental commander, will select and engage the services of one or more physicians, having diplomas and of well-established capacities and character, to assist him in inspecting the officers and men to be mustered, and to attend upon and accompany the troops on their march till relieved by others regularly appointed. They will be borne on the muster roll of field and staff as acting surgeon and acting assistant surgeon (not embraced in recapitulation), with dates and place of commencement of service, and in the column of remarks, say, "Engaged at Baltimore, July 25, by mustering officer, with approval of the regimental commander, to serve as acting surgeon (or acting assistant surgeon) in the regiment temporarily, and provisionally mustered at the rate of pay and allowances of that grade while serving, and for mileage from place of discharge to his home, or the place of general rendezvous."

10. Volunteers and militia are not to be less than 18 nor more than 45 years of age. Some exceptions may be admissible for overage in commissioned officers who are otherwise well qualified, but in this the mustering officer must exercise a sound and rigid judgment.

11. The men having been accepted by the surgeon the company will be formed and faced to the right. The mustering officer, accompanied by the surgeon, after inspecting and accepting the captain and lieutenants, will place himself about a dozen paces from, and nearly in front of, the first sergeant, with the captain near him, on his right, to call the names. The second lieutenant will place himself by the left of the first sergeant, with directions to keep the right—now front—file of the company (not called) closed up to his front, and to see that each man, when his name is called, personally answers "Here" in a tone to be heard distinctly by the mustering officer. At the instant of answering the man will step off briskly to and in front of the mustering officer, and pass on to join the first lieutenant, who will form the company in the same order as before, see that the rear-rank men cover those in front, and intervals preserved between the grades, so that the number in each may be easily distinguished and counted.

12. The mustering officer will be careful that men from one company or detachment are not borrowed for the occasion, to swell the ranks of others about to be mustered in. To this end, he will, at the conclusion of the muster-in of each battalion or regiment (whether mustered in by companies or not), cause the entire force to be paraded for inspection; and in case any deception or fraud is discovered to have been practiced, he will immediately report the fact to the Adjutant-General, that the guilty parties may be dismissed the service. No volunteer will be mustered into the service who is unable to speak the English language.

13. If the company be a mounted organization the men will be on horseback, in one rank, and the mustering officer will require them to move out of the rank for inspection. The horses will also be examined for soundness and adaptability for service. No horse under 5 nor over 9 years old should be received. In addition to the usual examination of officers and men a test of horsemanship must be made under the direction of the mustering officer; and no person shall be mustered into the mounted service who does not exhibit good horsemanship and practical knowledge of the ordinary care and treatment of horses.

14. Much will depend on the efficiency of the animals, and if the mustering officer is not a good judge of horses in the qualities mentioned he must obtain the services of some reliable disinterested person who is.

15. The horse equipments will consist of a saddle, saddle blanket, bridle with curb bit, and tie rope or halter, all strong, well fitting, and in excellent condition; but

no equipment will be accepted unless of pattern adopted for use in the United States Army for like purposes. Valuation of equipments shall not exceed the United States ordnance price for same, and the valuation of horses shall not exceed the Government contract price for animals for like use and purposes.

16. The mustering officer and captains of companies will select three impartial men of good standing who are judges of the value of horses, and not members of any company, nor owning or having interest in any horse therein, to appraise the horses and horse equipments. The valuation will be the fair cash price at the place and time—what the judges would be willing to give were they purchasing for themselves. And the assessed value for horses and horse equipments, subject to the limitation stated in paragraph 15 of these instructions—the two separate—will be put on the muster-in roll opposite the owners' names, and the appraisers, being sworn by the mustering officers, will sign the certificate for that purpose on the muster-in roll. And the valuation will be continued on the subsequent rolls.

17. Every officer and man should be the owner of the horse in his use; no officer or other person belonging to the command (company or regiment) can be the owner of, or in any manner have interest in, the horse in use by another.

18. When all the men have been called and accepted, the mustering officer, accompanied by the captain, will count the number in each grade, and see that they correspond with the number of names on the muster-in roll, and agree with the prescribed organization.

19. The mustering officer will administer the oath of allegiance as prescribed in the second Article of War to insure subordination and faithful service on the part of officers and men who have by enrollment and muster enlisted into the service of the United States. The company will be directed to uncover heads and hold up right hands, and then in a loud, distinct, and impressive manner the following oath will be administered:

"All and each of you do solemnly swear (or affirm) that you will bear true faith and allegiance to the United States of America, that you will serve them honestly and faithfully against all their enemies whomsoever, and that you will obey the orders of the President of the United States, and the orders of the officers appointed over you, according to the Rules and Articles of War."

The oath having been administered the mustering officer will cause the officers and enlisted men to subscribe to the same by signing their names in the appropriate column on the muster-in roll.

20. Three copies of the muster-in roll will be made and as soon as possible after muster in the mustering officer will forward one copy to the Adjutant-General of the Army, one copy to the adjutant-general of the State, and the third copy will be returned to the regimental, company, or detachment commander.

MUSTERING OUT A REGIMENT OR OTHER FORCE.

21. The rolls for this purpose will be compared with the muster-in rolls. All persons on the muster-in rolls, and absent at the final muster, must be accounted for, whether dead, captured, discharged, or otherwise absent; and if the mustering officer, in any particular case, shall have cause to doubt the report entered on the rolls, he shall demand the oath of one or more persons to prove the fact to his satisfaction. The rolls will also contain the names of all persons who have been borne on all muster rolls subsequent to the muster-in rolls, and the mustering officer will see that no more persons of the several ranks or grades are mustered out of service than were mustered in, unless fully satisfied that any excess was regularly authorized and at the time entered on the rolls.

22. Five copies of the muster-out roll will be made and disposed of by the mustering officer as follows: One to be sent to the Adjutant-General of the Army, two to the paymaster by whom the troops are to be paid, one to the adjutant-general of the State, and the fifth to the company commander, who will retain the same.

23. Whenever volunteers, or militia, are mustered for final discharge, on the expiration of their term of service, a discharge will be furnished for each officer and enlisted man, whether present or absent, except deserters. The blank discharges will be carefully filled in, signed by the commanding officer for the field, staff, and band, by the captains for their respective companies, and all countersigned by the mustering officer and by him returned to those officers for delivery to the individuals.

GENERAL DIRECTIONS.

24. No officer of the general staff of the militia force will be mustered into the service without special authority from the War Department.

25. No muster-in shall be dated back without authority from the Adjutant-General, except upon proof that it could not have been made at an earlier date, which proof shall consist of the affidavit of the officer, accompanied by that of his regi-

mental or detachment commander, setting forth that he has made all proper efforts to have himself mustered in, but without success, before the time at which he now presents himself. These affidavits must be attached to the copy of the muster-in roll intended for the Adjutant-General.

26. No officer shall be mustered in to date prior to the time that he has actually been performing the duties of the grade into which he desires to be mustered, nor prior to the time at which a vacancy is proved to have existed by the regimental or company records. If on the muster and pay rolls the applicant appears mustered for pay in one grade, he can not be mustered into the service, to cover the same period, as of any other.

27. When an officer or enlisted man receives a commission or appointment advancing him to a higher grade, and has not an opportunity of being mustered in, so as to appear on the next muster rolls as of the grade to which he is commissioned or appointed, he shall be mustered on the next muster roll in his proper grade, according to previous muster in, and a remark to the following effect made on the muster rolls opposite his name: "Received commission (or appointment) from the governor of the State of _____, as _____, in the _____ regiment of _____ volunteers, on _____ day of _____; waiting muster-in since that date."

28. Musters into the new and out of the old grade must be made for each appointment of a commissioned officer, as well as when enlisted men are appointed commissioned officers. A discharge in orders, or by order of the proper authority, is in all cases a muster out of the service of the United States, and no muster-out rolls will be furnished in such cases.

29. Individual musters in and musters out must be made on separate rolls, and a separate roll must be made for each individual. Officers or enlisted men of different organizations must not be mustered in or out on the same rolls.

30. A muster once made will in no case be altered, except by authority from the Adjutant-General of the Army, and all applications for alterations must pass through the mustering officer, if possible.

31. Enlisted men having received commissions or appointments will not be mustered in as commissioned officers until they shall have been discharged as soldiers by the department or corps commander.

GENERAL ORDERS, }

No. 26.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, April 27, 1898.

By direction of the Secretary of War, the following is published to the Army for the information and guidance of all concerned:

All absolutely necessary expenses for the subsistence, transportation, sheltering, and generally the maintenance of volunteers during the interval between their enrollment (enlistment) and their muster (or being sworn) into the service of the United States; also all incidental expenses connected therewith, such as the hire of offices, clerks, messengers, etc., for mustering officers, will be met by the Government of the United States from the proper appropriation at the disposal of the several staff departments of the Army. Certified vouchers for all expenditures herein authorized will be forwarded to the War Department for audit and payment. The vouchers should be certified by officers of the proper staff departments and approved by the mustering officers.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 31.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, April 30, 1898.

By direction of the Secretary of War, the following instructions governing the arming and equipping of volunteer troops called into service under the President's proclamation of April 23, 1898, and providing for the proper accountability for the arms and equipments, are published for the information and government of all concerned:

1. As soon as a regiment has been mustered into the United States service, the commanding officer of the regiment shall detail a lieutenant to perform the duties of acting ordnance officer for the regiment.

2. As soon as a regiment or other organization has been mustered into the United States service, the governor of the State is to invoice to the ordnance officer of a regiment, or the commanding officer of an organization, all the ordnance and ordnance stores which are furnished to the regiment or organization by the State.

3. The acting ordnance officer of a regiment, or the commanding officer of other organizations, will, immediately on receipt of this invoice, forward to the Chief of Ordnance a requisition, on blank form 22 to be furnished by the Chief of Ordnance, United States Army, for the ordnance and ordnance stores required to complete the armament and equipment of the regiment or organization. This requisition shall state:

- (a) The number of men mustered into the regiment or organization.
- (b) The total of ordnance and ordnance stores required for the full armament and equipment of the regiment or organization.
- (c) The ordnance and ordnance stores received from the governor of the State.
- (d) The difference, or the stores to be furnished to the regiment or organization by the Chief of Ordnance.
- (e) On receipt of stores from the Ordnance Department, the ordnance officer of a regiment or the commanding officer of an organization will send receipts therefor to the issuing officer.

4. On receipt of the ordnance and ordnance stores, both from the State and from the Chief of Ordnance, United States Army, the acting ordnance officer will, under the direction of the commanding officer of the regiment, turn over to each company or troop commander the stores required by each company or troop, taking receipts therefor, which receipts will be filed as vouchers with the next return to the Chief of Ordnance. Company or troop commanders are then held accountable for property turned over to them, and must make returns for such property to the Chief of Ordnance, United States Army, in accordance with existing law and Army Regulations. The acting ordnance officer will account to the Chief of Ordnance for the surplus stores left in his hands and for the armament and equipment of the non-commissioned staff and band.

5. On receipt of the stores invoiced to the ordnance officer of a regiment or to the commanding officer of an organization from the governor of the State, said officer will furnish the usual receipts to the governor of the State for property received, which receipts will be used as vouchers with the State's next property return to the Chief of Ordnance.

6. The Chief of Ordnance will keep an exact account of all the stores turned over to each regiment or organization by each State, as provided for herein, with a view to making provisions for future settlement with the State therefor.

7. All necessary blanks will be furnished by the Chief of Ordnance upon application, and such application should be made at once. The forms at first needed will be sent by the Chief of Ordnance to the different regiments and organizations as soon as it is ascertained where they are located.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 33. }

HEADQUARTERS OF THE ARMY,
ADJUTANT GENERAL'S OFFICE,
Washington, May 5, 1898.

By direction of the Secretary of War, the following instructions governing the arming and equipping of volunteer troops called into service under the President's proclamation of April 23, 1898, and providing for the proper accountability for the arms and equipments, are published in addition to those contained in General Orders, No. 31, Headquarters of the Army, Adjutant General's Office, April 30, 1898, for the information and government of all concerned:

1. As soon as a regiment has been mustered into the United States service, the commanding officer of the regiment shall appoint a regimental quartermaster for the regiment.

2. As soon as a regiment or other organization has been mustered into the service of the United States, the governor of the State is requested to invoice to the quartermaster of the regiment, or of the organization, all clothing, equipage, and quartermaster's supplies which were supplied and furnished the State by the Government of the United States. Should the clothing, equipage, and quartermaster's supplies furnished to the States by the Government of the United States be insufficient for the complete equipment of the regiments or organizations, then the clothing, equipage, and quartermaster's supplies which have been supplied and furnished by the State should be utilized, as far as possible, in the equipment of the several regiments or organizations, and a separate invoice of such clothing, equipage, and quartermaster's supplies should be made by the governor to the quartermaster of the regiment or organization stating its condition.

3. The quartermaster of a regiment, or of other organizations, will, immediately on receipt of this invoice, forward to the Quartermaster-General requisitions, on blank forms 53 and 60 to be furnished by the Quartermaster-General, United States

Army, for the clothing, equipage, and other quartermaster's supplies, required to complete the equipment of the regiment or organization. This requisition shall state:

- (a) The number of men mustered into the regiment or organization.
 - (b) The total of clothing, equipage, and other quartermaster's supplies required for the full equipment of the regiment or organization.
 - (c) The clothing, equipage, and other quartermaster's supplies received from the governor of the State.
 - (d) The difference to be furnished to the regiment or organization by the Quartermaster-General.
 - (e) On receipt of stores from the Quartermaster's Department, the quartermaster of a regiment or other organization will send receipts therefor to the issuing officer.
4. On receipt of the clothing, equipage, and other quartermaster's supplies, both from the State and from the Quartermaster-General, United States Army, the quartermaster will, under the direction of the commanding officer of the regiment, turn over to each company or troop commander the stores required by each company or troop, taking memorandum receipts therefor as provided in Army Regulation 1053, but the quartermaster will continue to carry said supplies on his returns until they have been transferred or expended and duly accounted for as required by Army Regulations.
5. On receipt of the stores invoiced to the quartermaster of a regiment or of an organization from the governor of the State, said officer will furnish the usual receipts to the governor of the State for property received, which receipts will be used as vouchers with the State's next annual property return to the Quartermaster-General.
6. The Quartermaster-General will keep an account of all the stores turned over to each regiment or organization by each State, as provided for herein, with a view to making provision for future settlement with the State therefor.
7. All necessary blanks will be furnished by the Quartermaster-General upon application, and such application should be made at once. The forms at first needed will be sent by the Quartermaster-General to the different regiments and organizations as soon as it is ascertained where they are located.
- By command of Major-General Miles.

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 47.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 17, 1898.

By direction of the Secretary of War the following instructions from the treaty articles of the Geneva Convention, together with regulations for their observance, are published for the information of all concerned:

EXTRACTS FROM THE TREATY ARTICLES OF THE GENEVA CONVENTION.

ARTICLE I. Ambulances and military hospitals shall be acknowledged to be neutral, and, as such, shall be protected and respected by belligerents so long as any sick or wounded may be therein.

Such neutrality shall cease if the ambulances or hospitals should be held by a military force.

ART. II. Persons employed in hospitals and ambulances, comprising the staff for superintendence, medical service, administration, transport of wounded, as well as chaplains, shall participate in the benefit of neutrality while so employed and so long as there remain any wounded to bring in or to succor.

ART. III. The persons designated in the preceding article may, even after occupation by the enemy, continue to fulfill their duties in the hospital or ambulance which they serve, or may withdraw in order to rejoin the corps to which they belong.

Under such circumstances, when these persons shall cease from their functions, they shall be delivered by the occupying army to the outposts of the enemy.

ART. IV. As the equipment of military hospitals remains subject to the laws of war, persons attached to such hospitals can not, in withdrawing, carry away any articles but such as are their private property.

Under the same circumstances an ambulance shall, on the contrary, retain its equipment.

ART. VI. Wounded or sick soldiers shall be entertained and taken care of, to whatever nation they may belong.

Commanders in chief shall have the power to deliver immediately to the outposts of the enemy soldiers who have been wounded in an engagement, when circumstances permit this to be done, and with the consent of both parties.

Those who are recognized, after their wounds are healed, as incapable of serving, shall be sent back to their country.

The others may also be sent back, on condition of not again bearing arms during the continuance of the war.

Evacuations, together with the persons under whose direction they take place, shall be protected by an absolute neutrality.

ART. VII. A distinctive and uniform flag shall be adopted for hospitals, ambulances, and evacuations. It must, on every occasion, be accompanied by the national flag. An arm badge (brassard) shall also be allowed for individuals neutralized, but the delivery thereof shall be left to military authority.

The flag and the arm badge shall bear a red cross on a white ground.

ADDITIONAL ARTICLES.

ARTICLE I. The persons designated in Article II of the convention shall, after the occupation by the enemy, continue to fulfill their duties, according to their wants, to the sick and wounded in the ambulance or the hospital which they serve. When they request to withdraw, the commander of the occupying troops shall fix the time of departure, which he shall only be allowed to delay for a short time in case of military necessity.

ART. III. Under the conditions provided for in Articles I and IV of the convention, the name "ambulance" applies to field hospitals and other temporary establishments, which follow the troops on the field of battle to receive the sick and wounded.

ART. V. In addition to Article VI of the convention, it is stipulated that, with the reservation of officers whose detention might be important to the fate of arms and within the limits fixed by the second paragraph of that article, the wounded fallen into the hands of the enemy shall be sent back to their country, after they are cured, or sooner if possible, on condition, nevertheless, of not again bearing arms during the continuance of the war.

REGULATIONS.

1. All persons connected with the medical department of the Army in the field, or referred to in Article II of the treaty, shall wear habitually during the war, on the left sleeve of the coat, midway between the shoulder and elbow, a brassard or arm badge, consisting of a red cross on a white ground.

2. All hospitals, ambulances, and field stations of the medical department will habitually display the Red Cross flag accompanied by the national flag.

3. Permits, in duplicate, for civilians to be present with the Army, in the service of the medical department, may be given by authority of a division commander; one copy of the permit will be retained by the person neutralized, and its duplicate should be forwarded promptly to the chief surgeon of the Army.

4. Persons neutralized under this authority will report themselves at once to the chief surgeon of division for instructions.

5. The wearing of the arm brassard by any person not officially neutralized is prohibited.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 54. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 25, 1898.

The following standard of supplies and equipment for field service is published for the information and guidance of troops in the military service of the United States. The allowance is regarded as the minimum for field service:

Headquarters of an army corps.—Three wagons for baggage, etc., or 8 pack mules; 1 two-horse wagon; 1 two-horse spring wagon; 10 extra saddle horses for contingent wants; 2 wall tents for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a division.—Two wagons for baggage, etc., or 5 pack mules; 1 two-horse spring wagon; 1 two-horse wagon; 5 extra saddle horses for contingent wants; 1 wall tent for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a brigade.—One wagon for baggage, or 5 pack mules; 1 two-horse spring wagon; 2 extra saddle horses for contingent wants; 1 wall tent for the commanding general; 1 wall tent for every two officers of his staff.

Allowance of transportation for regiment of cavalry, 49 wagons or 144 pack animals.

Allowance of transportation for battery light artillery, 4 wagons.

Allowance of transportation for regiment of infantry, 25 wagons.

Supplies to be carried in wagons per company: Ten days' field rations per man; 100 rounds of ammunition per soldier; 250 pounds of officers' baggage and supplies; tentage; grain for animals; utensils for each company mess, not to exceed 350 pounds for each troop, battery, or company; horseshoes, nails, tools, and medicines for cavalry horses, not to exceed 300 pounds; to each soldier or civilian employee (compactly rolled in one piece of shelter tent), 1 blanket, 1 poncho, and 1 extra suit of under-garments.

Whenever the amount of rations or grain varies from the above, the weight to be carried per 6-mule wagon may be increased or diminished, but should not exceed 4,000 pounds, and for 4-mule wagon 3,000, and, if possible, should be less per wagon.

Whenever obtainable on line of march, full forage will be allowed all animals, the rate of purchase to be regulated by the Quartermaster's Department.

To be carried on the person or horse: One overcoat, 1 piece of shelter tent, 50 rounds of rifle or carbine, and 24 rounds of revolver ammunition per soldier.

Supplies to be carried on pack mules for one troop of cavalry: Five days' field rations per man; 100 rounds of ammunition per soldier.

The utensils for each troop of cavalry must not exceed 350 pounds.

The weight of load per aperejo must never exceed 250 pounds, and should, if possible, be less than 200 pounds.

Troop of cavalry, company of infantry, or light battery.

	Troop of cavalry.	Company of infantry.	Light battery.
	Pounds.	Pounds.	Pounds.
Field rations, 10 days: Cavalry, 100 men; infantry, 106; artillery, 125.	3,640	3,858	4,550
Ammunition, 100 rounds: Cavalry, 100 men; infantry, 106 men	725	769	-----
Officers' baggage and supplies	250	250	250
Tentage (7 conical wall for cavalry and infantry, each; 9 for light battery)	854	854	1,098
Grain for animals, 10 days, 6 lbs.: Cavalry, 115; infantry, 12; artillery, 126	6,900	720	7,560
Utensils for each company mess	350	350	350
Horseshoes, nails, tools, and medicines for cavalry and artillery horses.	300	-----	325
Soldiers' baggage: Each 1 blanket, 1 poncho, 1 extra suit of under-garments, and 1 piece shelter tent.	1,662	1,761	2,078
Total	14,681	8,562	16,211

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 55. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 26, 1898.

By direction of the Secretary of War, the following law and the regulations established by the President to carry the same into effect are published for the information and guidance of all concerned:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in addition to the volunteer forces provided for by the act of April twenty-second, eighteen hundred and ninety-eight, entitled 'An act to provide for temporarily increasing the military establishment of the United States in time of war, and for other purposes,' the President may authorize the Secretary of War to organize, under the terms and conditions of the aforesaid act, a volunteer brigade of engineers from the nation at large, to consist of not more than three regiments and not more than three thousand five hundred men, possessing the special qualifications necessary for engineer troops, under such rules and regulations, including the appointment of the officers thereof, as may be prescribed by the Secretary of War: *Provided,* That not to exceed three officers of the Corps of Engineers of the Regular Army may hold volunteer commissions in any one regiment of the volunteer brigade of engineers at the same time: *And provided further,* That all officers shall be appointed by the President and with the consent of the Senate.

"SEC. 2. And the President is further empowered, during the present war, under the act of April twenty-second, eighteen hundred and ninety-eight, to authorize the Secretary of War to organize an additional volunteer force of not exceeding ten thousand enlisted men possessing immunity from diseases incident to tropical climates; the officers thereof to be appointed by the President, by and with the advice and consent of the Senate.

"SEC. 3. The provisions of the act of April twenty-second, eighteen hundred and ninety-eight, which provides that volunteers called out by proclamation of the President shall be apportioned to the several States, and the provisions of said act which provides that the governor of the States shall appoint officers shall not apply to this act.

"Approved, May 11, 1898."

I. VOLUNTEER ENGINEER BRIGADE.

1. The brigade of engineers provided for in the above-cited act of Congress will comprise three regiments, to be designated, respectively, the First, Second, and Third regiments, United States Volunteer Engineers.

Each regiment will consist of 1 colonel, 1 lieutenant-colonel, 1 first lieutenant (adjutant), 1 first lieutenant (quartermaster), 1 surgeon, 2 assistant surgeons, 1 chaplain, 1 sergeant-major, 1 quartermaster-sergeant, 1 chief musician, 2 principal musicians, and three battalions.

Each battalion will consist of 1 major, 1 first lieutenant (adjutant), 1 first lieutenant (quartermaster), 1 sergeant major, 1 quartermaster-sergeant, 1 hospital steward, and four companies.

Each company will consist of 1 captain, 1 first lieutenant, 1 second lieutenant, eight sergeants, eight corporals, 2 musicians, 45 first-class privates, and 28 second-class privates.

For each regiment: Total commissioned, 53; total enlisted, 1,106; aggregate, 1,159.

2. The officers will be selected for their skill as military, civil, electrical, mechanical, or topographical engineers. An effort will be made to recruit the enlisted men from every branch of the engineering profession and of mechanical skill. Machinists, steam engineers, blacksmiths, carpenters, plumbers, telegraphers, topographers, draftsmen, photographers, railroad men, riggers, boatmen, and those skilled in the use of explosives are especially desired.

3. Volunteer engineer troops will be armed and equipped as infantry. Their uniform will conform to that prescribed for the use of engineer troops of the Regular Army.

II. U. S. VOLUNTEER INFANTRY.

1. The force provided for in the second section of the afore-quoted act of Congress will, as far as practicable, be made up of officers and men, who, owing to their origin, the places of their residence, and other circumstances affecting their physical characteristics, possess immunity, or are likely to be exempt from diseases incident to tropical climates.

It will be organized into ten regiments of infantry by the Adjutant-General of the Army, who will designate each regiment "_____ Regiment of United States Volunteer Infantry." At least five of the regiments will be composed of white persons and the other regiments of persons of color.

2. Each regiment will consist of 1 colonel, 1 lieutenant-colonel, 2 majors, 12 captains, 14 first lieutenants (including 1 adjutant and 1 quartermaster), 12 second lieutenants, 1 surgeon, 2 assistant surgeons, 1 chaplain, 1 sergeant-major, 1 quartermaster-sergeant, 1 chief musician, 2 principal musicians, and 3 hospital stewards, and of three battalions composed each of four companies.

The enlisted strength of each company will not exceed 1 first sergeant, 1 quartermaster-sergeant, 4 sergeants, 8 corporals, 2 musicians, 1 artificer, 1 wagoner, 64 privates; aggregate, 82. The minimum enlisted strength is fixed at 75.

For each regiment: Total commissioned, 46; total enlisted, 992; aggregate, 1,038.

III. GENERAL PROVISIONS.

1. A board will be instituted for each regiment of engineers and regiment of volunteer infantry, consisting of the colonel and one officer of the Regular Army not connected with the organization, for the purpose of examining such applicants for commissions in the regiment as have been invited by the War Department to present themselves for examination and as have been pronounced by a medical officer of the Army to be free from bodily defects that would disqualify them for the military service. The board will submit their reports to the Adjutant-General of the Army,

specifying the grade of commission which each candidate found qualified is deemed fit to hold, and, when necessary, authority to recruit will be given accordingly.

In order to expedite the organization and equipment of each regiment, the regimental quartermaster and adjutant selected may be at once commissioned first lieutenants, but the commissions of the other officers as prescribed by the law will not be issued from the Adjutant-General's Office until the established number of men are ready for muster into service. Authority to recruit will not be given to any person who has not been passed upon by a board. Regulations for the guidance of examining boards, and establishing the scope of the examination for applicants for commissions for each of the branches of the service herein provided for, will be announced hereafter.

2. Noncommissioned officers will be selected and appointed in accordance with the Army Regulations. Such of them as show aptitude in the handling of men and can demonstrate in other regards their fitness for it to the satisfaction of an examining board will be entitled to promotion to commissioned rank.

3. All applications for commissions in regiments of either branch of the force, or for information concerning them, will be addressed to the Adjutant-General of the Army and be marked "United States Volunteer Engineers" or "United States Volunteer Infantry." Each applicant will state his age, where born, whether a citizen of the United States, his residence, and educational qualifications. If an applicant for appointment in the engineer brigade, his special technical qualifications; if for appointment in a regiment of volunteer infantry, his educational qualifications must be stated.

4. The officers designated to organize regiments under these rules will at the proper time make requisitions on the several staff departments for arms, equipments, clothing, and camp equipage, indicating the point to which supplies are to be sent; and they will keep the Adjutant-General of the Army advised as to progress of the recruitment and organization of their several commands.

5. The provisions of General Orders, No. 26, Adjutant-General's Office, 1898, for meeting expenses connected with the raising of volunteers under said quotas are hereby made applicable to the recruitment of regiments of this force. Expenditures of this account must be limited to cases of absolute necessity. Special care will be observed that no man be enrolled who lacks the requisite moral and physical qualification. To this end and to facilitate the mustering of companies into the United States service, a form of enrollment paper containing the certificate of the recruiting agent that the man enrolled fulfills all physical requirements will be supplied by this office. Subsequent rejections on account of physical defects are to be explained by the enrolling agent.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

CIRCULAR }
No. 14. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 27, 1898.

By direction of the Secretary of War the following letter of the First Assistant Postmaster-General, in regard to the franking of letters mailed by soldiers in the field, is published for the information of the armies in the field:

POST-OFFICE DEPARTMENT,
FIRST ASSISTANT POSTMASTER-GENERAL,
DIVISION OF CORRESPONDENCE,
Washington, May 24, 1898.

SIR: I have the honor to return herewith your reference, dated May 20, and mailed May 23 at 1.30 p. m., of a telegram from General Shafter in regard to the franking of letters mailed by soldiers in the field. The act of Congress approved March 3, 1879, contains the following provision:

"The Postmaster-General may, however, provide, by regulation, for transmitting unpaid and duly certified letters of soldiers, sailors, and marines in the service of the United States to their destination, to be paid on delivery."

Under the provisions of the above act the Postmaster-General has issued the following regulation:

"Letters written by officers, commissioned or noncommissioned, and privates in the military, naval, or marine service of the United States, to be transmitted unpaid must be plainly marked 'Soldier's letter,' 'Sailor's letter,' or 'Marine's letter,' as the case may be, and signed thereunder with his name and official designation by a field or staff officer, post or detachment commander to whose command the soldier belongs, or by a surgeon or chaplain at a hospital where he may be, and in the Navy

and Marine service by the officer in command of the vessel, or surgeon on board, or officer commanding naval hospital or detachment on shore. Letters so certified will be forwarded charged with postage due at single rates only, to be collected on delivery."

I presume that this will cover the inquiry made by General Shafter.

Very respectfully,

PERRY S. HEATH,
First Assistant Postmaster-General.

The SECRETARY OF WAR.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 57.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 30, 1898.

After a prolonged period of peace our Army is once more called upon to engage in war in the cause of justice and humanity. To bring the military forces to the highest state of efficiency and most speedily accomplish what is expected should be the earnest effort and call forth the best energies of all its members, of whatsoever station.

The laws and regulations which govern military bodies in civilized countries have been developed to their present perfection through the experience of hundreds of years, and the faithful observance of those laws and regulations is essential to the honor and efficiency of the Army.

All authority should be exercised with firmness, equity, and decorum on the part of superiors, and should be respected by implicit obedience and loyal support from subordinates.

Every officer of whatever grade will, so far as may be in his power, guard and preserve the health and welfare of those under his charge. He must labor diligently and zealously to perfect himself and his subordinates in military drill, instruction, and discipline; and, above all, he must constantly endeavor, by precept and example, to maintain the highest character, to foster and stimulate that true soldierly spirit and patriotic devotion to duty which must characterize an effective army. The major-general commanding confidently trusts that every officer and soldier in the service of the Republic, each in his proper sphere, will contribute his most zealous efforts to the end that the honor and character of the Army may be preserved untarnished and its best efforts crowned with success.

This order is given upon a day sacred to the memory of the heroic dead, whose services and sacrifices afford us example and inspiration, and it is expected that all will be fully impressed with the sacred duty imposed upon the Army by the Government of our beloved country.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 58.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 31, 1898.

I. By direction of the Secretary of War, the following is published to the Army for the information and guidance of all concerned:

Enlisted men of the volunteer organizations may be transferred to the Hospital Corps of the Regular Army by the commanding general of the army corps in which the soldier is serving, upon the recommendation of the chief surgeon of the corps.

The provisions of Army Regulations governing the Hospital Corps, so far as they are inapplicable in time of war and with troops in the field, are hereby suspended during the existence of such conditions.

The commander of an army corps, or of a division or brigade acting independently of a corps, is charged with the full control of the transfer from the line, the enlistment, reenlistment, and discharge of members of the hospital corps of his command, with the detail of acting hospital stewards and the appointment of hospital stewards.

Acting hospital stewards will be detailed from privates of the Hospital Corps who are recommended by their medical officers as possessing the necessary qualifications. Hospital stewards will be appointed from acting hospital stewards who are recommended by their medical officers and who have served not less than three months in the Hospital Corps and are approved by a board of not less than three medical officers.

Enlistment papers in duplicate, examination forms, and outline figure cards for members of the Hospital Corps will be forwarded to the Surgeon-General's Office, as now required, and monthly reports will be made by the chief surgeon of the corps, or division if acting independently, showing the number of stewards, acting stewards, and privates on duty, the names of men transferred from the line, of those enlisted or reenlisted, discharged, died, detailed acting hospital steward, or appointed hospital steward.

The quota of members of the Hospital Corps for a corps of 25,000 men is—

	Hospital stewards.	Acting hospital stewards.	Privates.
For each regiment of infantry.....	1		1
For each artillery battalion, three light batteries.....		3	1
For each regiment of cavalry.....	1		2
For each corps headquarters.....	1		2
For each division headquarters.....	1		1
For each brigade headquarters.....			1
For each division ambulance company, and for the reserve corps company.....	7	3	104
For each division field hospital, and for the reserve corps field hospital.....	6	3	90

The three volunteer hospital stewards mustered in with each regiment are included in this strength.

The corps commander may make such distribution of the members of the Hospital Corps within his command as he considers for the best interests of the service.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 60. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 1, 1898.

1. The following-named officers will proceed to the places set after their names for the purpose of organizing the regiments of volunteer infantry to which they have been appointed the colonels:

- Col. Patrick H. Ray, Third U. S. Volunteer Infantry, to Macon, Ga.
- Col. James S. Pettit, Fourth U. S. Volunteer Infantry, to Washington, D. C.
- Col. Herbert H. Sargent, Fifth U. S. Volunteer Infantry, to Columbus, Miss.
- Col. Lawrence D. Tyson, Sixth U. S. Volunteer Infantry, to Knoxville, Tenn.
- Col. Edward A. Godwin, Seventh U. S. Volunteer Infantry, to Memphis, Tenn.
- Col. Eli L. Huggins, Eighth U. S. Volunteer Infantry, to Louisville, Ky.
- Col. Charles J. Crane, Ninth U. S. Volunteer Infantry, to New Orleans, La.
- Col. Jesse M. Lee, Tenth U. S. Volunteer Infantry, to Raleigh, N. C.

The travel enjoined is necessary for the public service.

2. The apportionment of territory in which these organizations will be raised will be as follows:

For the Third Regiment, Colonel Ray, the States of Georgia, South Carolina, and Florida; headquarters at Macon, Ga.

For the Fourth Regiment, Colonel Pettit, the States of Maryland, Virginia, West Virginia, and the District of Columbia; the headquarters of this regiment will be designated hereafter.

For the Fifth Regiment, Colonel Sargent, the States of Alabama and Mississippi; headquarters at Columbus, Miss.

For the Sixth Regiment, Colonel Tyson, the States of Kentucky and Tennessee; headquarters, Knoxville, Tenn.

For the Seventh Regiment, Colonel Godwin, the States of Missouri and Arkansas, and so much of Tennessee as lies east of a due north and south line running through the city of Cincinnati, Ohio; headquarters, Memphis, Tenn.

For the Eighth Regiment, Colonel Huggins, the State of Kentucky, all of Tennessee not otherwise allotted, and the Ohio Valley; headquarters, Louisville, Ky.

For the Ninth Regiment, Colonel Crane, the State of Louisiana; headquarters, New Orleans, La.

For the Tenth Regiment, Colonel Lee, the States of Virginia and North Carolina; headquarters, Raleigh, N. C.

3. The following officers are hereby detailed as mustering officers for the various regiments above named:

For the Third Regiment, Capt. E. P. Brewer, Seventh Cavalry.

For the Fourth Regiment, Capt. Wm. P. Goodwin, Fourteenth Infantry.
 For the Fifth Regiment, First Lieut. Magnus O. Hallis, Fourth Infantry.
 For the Sixth Regiment, First Lieut. S. P. Vestal, Seventh Cavalry.
 For the Seventh Regiment, Capt. P. E. Trippe, Tenth Cavalry.
 For the Eighth Regiment, Second Lieut. J. McA. Palmer, Fifteenth Infantry.
 For the Ninth Regiment, First Lieut. F. D. Webster, Twentieth Infantry.
 For the Tenth Regiment, First Lieut. William G. Elliot, Twelfth Infantry.

4. Each mustering officer will also act as quartermaster and commissary for the purposes of subsisting the volunteers from the time of enrollment to the time of rendezvous, and for their transportation from the place of enrollment to the place of rendezvous.

Upon the receipt of this order each mustering officer will communicate by telegraph with the colonel of the regiment to which he is assigned, and thereafter will hold himself in readiness to proceed to such points as the colonel may indicate, and at which a body of recruits approximating the size of a company is awaiting muster-in to the United States service.

The surgeon or assistant surgeon of the regiment will also proceed with the mustering officer to the same points; and the colonel or one of his staff officers is authorized to proceed from the regimental headquarters to the place where each company is being organized and to conduct it to the headquarters of the regiment.

As soon as a company has been organized and mustered into service the mustering officer will direct its transportation to the place of rendezvous of the regiment.

For this purpose the mustering officers will provide themselves with the necessary transportation requests and other blanks, and will make timely requisition for such travel rations as may be necessary.

Commanding officers of regiments will so arrange their itineraries as to involve as little travel as possible.

The travel herein directed is necessary for the public service.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
 No. 61. }

HEADQUARTERS OF THE ARMY,
 ADJUTANT-GENERAL'S OFFICE,
 Washington, June 1, 1898.

Under and in pursuance of the President's proclamation of May 25, 1898, calling forth volunteers to the aggregate number of 75,000, and of section 7 of an act of Congress approved April 22, 1898, which provides that no new organizations shall be accepted into the service from any State unless the organizations already in service from such State are as near to their maximum strength as the President may deem necessary, the following general rules for accomplishing the objects of said proclamation are announced by the Secretary of War for the information and guidance of all concerned:

1. Organizations already accepted and mustered into the United States service under the President's proclamation of April 23, 1898, will be expanded: first, by recruiting such companies thereof as have been mustered in to the maximum enlisted strength prescribed in the act of Congress approved April 26, 1898, and published in General Orders, No. 29, April 29, 1898, from this office; second, *except for cavalry*, by the organization of additional companies necessary for the completion of regiments to twelve companies, and battalions to four companies, of the maximum enlisted strength above indicated. The number of recruits required for each organization already in service will be determined by the Adjutant-General of the Army, under whose direction and supervision the recruitment herein ordered will be conducted.

2. The following States and Territories having received under the President's first call an apportionment in excess of their combined quotas under first and second calls, will not be included in this order, viz: Delaware, Idaho, Montana, Nevada, North Dakota, South Dakota, Vermont, Wyoming, District of Columbia, Arizona, New Mexico, Oklahoma, and Indian Territories.

3. With the exceptions indicated in paragraph 2, a recruiting party consisting of one officer and four enlisted men, one of whom should be qualified to perform clerical work, will be detailed from each battalion of a regiment and from each independent battalion already in the service, by the commanding officer thereof. In like manner a recruiting party of one officer and one enlisted man will be detailed from each company now in service and not otherwise provided for herein. Each party will be ordered to proceed to the locality where the organization for which it is to recruit was raised. Instructions for recruiting officers and blank forms will be sent to the Adjutant-General of the State, to whom officers in charge of recruiting parties should

apply for the same, notifying him of the number of men he is to recruit. The names of the officers, their respective organizations and the points to which sent will be reported to the Adjutant-General of the Army, who will give all further orders and instructions that may be necessary. Each recruiting officer thus detailed will also be an acting quartermaster.

4. Arrangements will be made through the chief quartermaster of the department within the geographical limits of which the recruiting is being done for renting, when necessary, under emergency agreements, suitable quarters for temporary recruiting stations and the furnishing of supplies therefor. Arrangements will be made with the chief commissary of the department, as above, for the subsistence of recruiting parties and recruits. Recruits will be sent, under charge of the most reliable one of their number, to their several regiments in small squads without uniform, arms, or equipment. Each commander detailing a recruiting officer under these instructions will promptly mail to the chief commissary and chief quartermaster, respectively, of the department into which the recruiting officer is sent, a copy of the order of detail with the signature of the recruiting officer inscribed upon the same.

5. Additional companies necessary for the completion of regiments and battalions as herein provided for, will be organized and mustered into the United States service under the same rules that govern the organization and muster-in of the troops raised under the President's proclamation of April 23, 1898, and the necessary instructions will be promulgated later.

6. Department, corps, and regimental commanders are intrusted with the prompt and careful execution of this order. The necessary orders for transportation and subsistence will be given by department and corps commanders, the travel enjoined being necessary for the public service.

By command of Major General Miles:

H. C. CORBIN, *Adjutant General.*

[Circular letter.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, June 3, 1898.

VOLUNTEER RECRUITING SERVICE.

I. The following instructions are published for the information and guidance of officers of the Volunteer Army detailed under the provisions of General Orders, No. 61, June 1, 1898, from this office, to recruit for their own organizations after muster into the service of the United States, to fill them to the maximum:

QUALIFICATIONS FOR RECRUITS.

Applicants for enlistment must be between the ages of 18 and 45 years, of good character and habits, able-bodied, free from disease, and must be able to speak the English language.

Married men will be enlisted only upon the approval of a regimental commander.

Minors must not be enlisted without the written consent of father, only surviving parent, or legally appointed guardian.

Enlistments will be confined to persons who are citizens of the United States, or who have made legal declaration of their intention to become citizens thereof.

Applicants will be required to satisfy the recruiting officer regarding age and character, and should be prepared to furnish the necessary evidence. They must defray their own expenses to the place of enlistment; their fitness for the military service can be determined only upon examination at a recruiting station.

The term of service is two years.

For infantry and artillery the height should be not less than 5 feet 4 inches, and weight not less than 120 pounds and not more than 190 pounds.

For cavalry the height should not be less than 5 feet 4 inches and not more than 5 feet 10 inches, and weight not to exceed 165 pounds. No minimum weight is prescribed for cavalry, but the chest measures must be satisfactory.

Recruiting officers are, however, authorized in their discretion to accept desirable applicants who are 10 pounds or less overweight or underweight, or who vary not more than a fraction of an inch from the required height or chest measures, if they meet all other requirements. In every such case the variation from the normal standard should be carefully noted on the enlistment paper.

EXAMINATION OF RECRUITS.

At a recruiting station where there is no medical officer of the Army, Regular or Volunteer, available to examine applicants for enlistment, the recruiting officer will immediately telegraph the fact to the Surgeon-General of the Army, stating the number of men required by the organization for which he is recruiting, in order that it may be determined whether or not a contract physician will be provided for the purpose. If no provision be made for the medical examination of applicants before enlistment, the required examination will be made by the recruiting officer himself, guided by Greenleaf's Epitome of Tripler's Manual (4th edition), and recruits who are accepted by him will be enlisted and sworn into service. (A. R. 842.) Recruits thus enlisted will be reexamined by a civilian physician before leaving the recruiting station for regiments, and before any clothing is issued to them. This reexamination will be made as soon as practicable after enlistment, and always before the expiration of the trimonthly period within which the oath is administered. The accounts of physicians for such examinations will be prepared by the recruiting officers in accordance with Army Regulation 1458, on forms supplied by the Surgeon-General.

The physician who makes the reexamination will record the result thereof in an appropriate place on the enlistment form and specify all defects discovered in his examination not reported by the recruiting officer.

If the result of the physician's examination be favorable, the recruit will be considered as finally accepted.

If the opinion of the physician be that the recruit is disqualified for the service, a certificate of disability (A. R. 154), signed by the physician and the recruiting officer, with a duplicate of the enlistment form, will be forwarded by the recruiting officer direct to the Adjutant-General of the Army, with full report of the facts.

ENLISTMENTS.

The enlistment form for volunteers (A. G. O., No. 8, Vols.) will be used. This blank includes a form for the physical examination of recruits. All enlistments will be as privatees, and only one enlistment paper will be made in the case of each volunteer soldier, except as provided for in note on blank. Enlistment papers will be transmitted to the Adjutant-General of the Army by the recruiting officer on the 10th, 20th, and last day of each month, with a trimonthly report prepared on Form A. G. O., No. 29. Recruiting officers are required to give *personal* attention to the preparation and forwarding of these reports, as it is of first importance that they be *promptly and correctly* rendered in accordance with the instructions thereon.

Each trimonthly report, with the enlistment papers pertaining thereto, will be mailed to this office in an envelope containing no other matter. No enlistment papers are to accompany the copy of the trimonthly report sent to the regimental or other commander.

An assignment card (A. G. O., No. 9, Vols.) will be prepared for each recruit enlisted, and will be sent to the destination of the recruit, as provided in paragraph 850, Army Regulations, and the instructions on the card.

Great care must be taken in the preparation of all these blanks, and it is specially important that the designation of the regiments for which enlistments are made be correctly indicated thereon.

These instructions are *not* intended to apply when authority is given to raise additional companies for any organization. (Paragraph 5, General Orders, No. 61, of 1898.)

MAXIMUM LIMITS.

For a regiment the maximum of all grades, commissioned and enlisted, must not exceed 1,326 in infantry or 1,255 in cavalry.

For a company the maximum of all grades is 106 in infantry, 100 in cavalry, 173 in field artillery, and 200 in heavy artillery, *provided* that the maximum strength of all grades for regiments as herein given shall in no case be exceeded.

Whenever practicable the choice by an accepted applicant of a particular company of the regiment or other organization for which the recruiting officer is making enlistments should be respected, *provided* there is a vacancy therein.

Recruiting officers will communicate frequently with their commanding officers in order to keep fully advised of the number of recruits required from time to time, and to prevent making enlistments that will carry a regiment, battalion, or any company beyond the authorized maximum.

RECRUITING STATIONS AND QUARTERMASTER'S SUPPLIES.

Emergency agreements may be entered into for renting suitable quarters when required for temporary recruiting stations and the furnishing of supplies therefor.

Certified vouchers for such rent and other actually necessary expenditures pertaining to the Quartermaster's Department should be forwarded for payment to the chief quartermaster of the department within the geographical limits of which the recruiting is being done, to whom the recruiting officers should also apply for necessary transportation requests and for any desired information regarding the use thereof, the route by which recruits should be sent, &c.

SUBSISTENCE OF RECRUITING PARTIES AND RECRUITS.

Subsistence funds for payment of commutation of rations for recruits, or to pay coffee money to them, can be obtained by the recruiting officer from the chief commissary of the department within the geographical limits of which he is recruiting. Circular letter, Adjutant-General's Office, January 3, 1896, publishes instructions regarding the subsistence of recruits while traveling.

Upon the arrival of a recruiting officer at a city or town where he is to establish a recruiting station he will at once make inquiries at the available places in the neighborhood of the station as to the prices at which meals for his party can be obtained and will procure them, of proper quality, by open purchase at the most reasonable rates, until he can advertise for proposals by means of Form No. 28, Subsistence Department. Payment for meals will be made in the manner indicated in the notes on that form. Attention is called to that condition of the contract for meals (Form No. 28, Subsistence Department) which stipulates that lunches shall be furnished when required. These lunches are intended to take the place of travel rations for recruits traveling, where it is not practicable to furnish the travel ration.

The Secretary of the Treasury, under section 3620, Revised Statutes, has authorized subsistence funds to be retained in small amounts in the personal possession of officers intrusted with the disbursement of the same, wherever such officers are stationed in places where there is no Treasurer or assistant treasurer of the United States. For convenience of recruiting officers who receive funds and make payments in small amounts, and of the recruits who receive such payments, it is preferable that payments be made in ready money rather than by checks on distant depositories.

ADDITIONAL INSTRUCTIONS, BLANKS, ETC.

To supplement the instructions contained in this circular letter, each recruiting officer detailed under the provisions of General Orders, No. 61, of 1898, will, in accordance with paragraph 3 of that order, be furnished, through the adjutant-general of the State, with a copy thereof, and of General Orders, No. 29, of 1898, from this office; also with circular letter, Adjutant-General's Office, January 3, 1896, herein referred to, and with necessary blanks pertaining to the recruiting service, and to the Quartermaster's, Subsistence, and Medical Departments.

COMPLETION OF DUTIES.

When the organization for which an officer is recruiting has been filled to the maximum, he will at once report the fact through his immediate commanding officer to the proper department or corps commander, together with the names of the members of his recruiting party, with a view to the issue of the necessary orders.

II. Enlistments *in the field* for a volunteer organization already mustered into the service of the United States, and in which there are vacancies, will be made by the proper mustering officer of the department, corps, division, or district in which the organization is serving. In such cases the enlistment form (A. G. O., No. 8, Vols.) will be used, and will be forwarded by the mustering officer to the Adjutant-General of the Army. An assignment card (A. G. O., No. 9, Vols.) will be prepared in the case of each recruit and sent to the commanding officer of the organization for which he is enlisted.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, June 6, 1898.

The following information concerning the brigade of volunteer engineers, authorized by act of Congress approved May 11, 1898, is published to meet the numerous inquiries that are being received at the Department:

THE ORGANIZATION.

The brigade of engineers provided for in the above-cited act of Congress will comprise three regiments, to be designated, respectively, the First, Second, and Third Regiments United States Volunteer Engineers.

Each regiment will consist of 1 colonel, 1 lieutenant-colonel, 1 first lieutenant (adjutant), 1 first lieutenant (quartermaster), 1 surgeon, 2 assistant surgeons, 1 chaplain, 1 sergeant-major, 1 quartermaster-sergeant, 1 chief musician, 2 principal musicians, and three battalions.

Each battalion will consist of 1 major, 1 first lieutenant (adjutant), 1 first lieutenant (quartermaster), 1 sergeant-major, 1 quartermaster-sergeant, 1 hospital steward, and four companies.

Each company will consist of 1 captain, 1 first lieutenant, 1 second lieutenant, 8 sergeants, 8 corporals, 2 musicians, 45 first-class privates, and 28 second-class privates.

For each regiment: Total commissioned, 53; total enlisted, 1,106; aggregate, 1,159.

For the purposes of organization the territory of the United States has been subdivided as follows:

For the First Regiment, Col. Eugene Griffin—the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia. The organization and recruitment of this regiment is well advanced. Headquarters for the regiment, 335 Broadway, New York City. The regiment will rendezvous at Camp Townsend, near Peekskill, N. Y.

For the Second Regiment, Col. Willard Young—the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Wyoming, Montana, Idaho, Utah, Nevada, California, Oregon, and Washington. The regiment will be recruited as follows:

The first battalion: One company at Springfield, Ohio; two companies at Cincinnati, Ohio; one company at Indianapolis, Ind.

The second battalion: Two companies at Chicago, Ill.; one company at St. Paul, Minn.; one company at Omaha, Nebr.

The third battalion: One company at Denver, Colo.; one company at Salt Lake City, Utah; one company at San Francisco, Cal.; one company at Portland, Ore.

The regiment will rendezvous at Fort Sheridan, near Chicago, Ill. Correspondence regarding this regiment should be addressed for the present to the Adjutant-General of the Army.

For the Third Regiment, Col. David DuB. Gaillard—the States of Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Missouri, Arkansas, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, the Indian Territory, Oklahoma, New Mexico, and Arizona. The regiment will rendezvous at Jefferson Barracks, near St. Louis, Mo. Correspondence regarding this regiment should be addressed for the present to the Adjutant-General of the Army.

The officers will be selected for their skill as military, civil, electrical, mechanical, or topographical engineers. An effort will be made to recruit the enlisted men from every branch of the engineering profession and of mechanical skill. Machinists, steam engineers, blacksmiths, carpenters, plumbers, telegraphers, topographers, draftsmen, photographers, railroad men, riggers, boatmen, and those skilled in the use of explosives are especially desired.

UNIFORM AND EQUIPMENT.

Engineer troops are armed and equipped as infantry. Their uniform conforms to that prescribed for the use of engineer troops of the Regular Army. Each soldier carries the following:

Rifle	1	Gun sling	1
Blanket bag	1	Haversack	1
Blanket-bag shoulder straps (pair) ..	1	Haversack strap	1
Blanket-bag coat straps (pair)	1	Meat can	1
Hayonet scabbard	1	Tin cup	1
Cartridge belt, woven, or 1 cartridge box, with waist belt and plate	1	Knife	1
Canteen	1	Fork	1
Canteen strap	1	Spoon	1

Special instruments, tools, and other paraphernalia essential to the various operations in which these troops are employed are carried in wagons which accompany them.

PAY, ETC.

Sergeants of engineers in time of war receive \$40.80 a month; corporals, \$24; first-class privates, \$20.40; second-class privates, \$15.60; also rations, clothing, bedding, medicines, and medical attendance. The term of service is two years.

REQUIREMENTS FOR ENLISTMENT.

Applicants for enlistment must be between the ages of 18 and 45 years, of good character and habits, able-bodied, free from disease, and must be able to speak the English language.

Married men will be enlisted only upon the approval of a regimental commander. Minors must not be enlisted without the written consent of father, only surviving parent, or legally appointed guardian.

Original enlistments will be confined to persons who are citizens of the United States, or who have made legal declaration of their intention to become citizens thereof.

Applicants will be required to satisfy the recruiting officer regarding age and character, and should be prepared to furnish the necessary evidence.

The height must not be less than 5 feet 4 inches, and weight not less than 120 pounds and not more than 190 pounds.

Table of physical proportions for height, weight, and chest measurement.

Height.		Weight.	Chest measurement.	
Feet.	Inches.	Pounds.	At expiration (inches).	Mobility (inches).
5 $\frac{1}{2}$	64	128	32	2
5 $\frac{1}{2}$	65	130	32	2
5 $\frac{1}{2}$	66	132	32 $\frac{1}{2}$	2
5 $\frac{1}{2}$	67	134	33	2
5 $\frac{1}{2}$	68	141	33 $\frac{1}{2}$	2 $\frac{1}{2}$
5 $\frac{1}{2}$	69	148	33 $\frac{1}{2}$	2 $\frac{1}{2}$
5 $\frac{1}{2}$	70	155	34	2 $\frac{1}{2}$
5 $\frac{1}{2}$	71	162	34 $\frac{1}{2}$	2 $\frac{1}{2}$
6	72	169	34 $\frac{1}{2}$	3
6 $\frac{1}{2}$	73	176	35 $\frac{1}{2}$	3

It is not necessary that an applicant should conform exactly to the figures indicated in the table of proportions, the variation of a few pounds in weight either way and of a fraction of an inch in chest measures being permissible.

Noncommissioned officers will be selected and appointed in accordance with the Army Regulations. Such of them as show aptitude in the handling of men and can demonstrate in other regards their fitness for it to the satisfaction of an examining board will be entitled to promotion to commissioned rank.

COMMISSIONED OFFICERS.

A board will be instituted for each regiment of engineers, consisting of the colonel and one officer of the Regular Army not connected with the organization, for the purpose of examining such applicants for commissions in the regiment as have been notified by the War Department to present themselves for examination and as have been pronounced by a medical officer of the Army to be free from bodily defects that would disqualify them for the military service. The board will submit their reports to the Adjutant-General of the Army, specifying the grade of commission which each candidate found qualified is deemed fit to hold, and, when necessary, authority to recruit will be given accordingly.

In order to expedite the organization and equipment of each regiment, the regimental quartermaster and adjutant selected may be at once commissioned first lieutenants; but the commissions of the other officers as prescribed by the law will not be issued from the Adjutant-General's Office until the established number of men are ready for muster into service. Authority to recruit will not be given to any person who has not been passed upon by a board. The following rules govern the examination for applicants for commissions:

Applicants will be examined with reference to their mental, moral, and physical fitness to hold a commission and perform the duties of a commissioned officer in an engineer regiment.

Physical fitness will be determined by an examination to be made by a medical officer of the United States Army, and each applicant must present to the board of examiners a certificate from such medical officer that he has been carefully examined and found physically qualified in all respects to perform the duties of an officer of the United States Army.

Moral fitness will be determined by the record of the applicant and by certificates from responsible parties having personal knowledge of the applicant's moral character.

In determining mental fitness the board of examiners will give due weight to the following:

The nature and extent of applicant's engineering education.

The nature and extent of applicant's experience in practical engineering works.

The variety of engineering works on which applicant has been engaged.

The location of such works, whether in the northern or southern parts of the United States, or in foreign countries, particularly in tropical climates.

The time, if any, that applicant has lived in tropical climates, and the general nature of his experience in such climates.

The importance of applicant's position with reference to engineering works, whether chief engineer or assistant, and the number and character of men which have been under his command and direction.

The facility with which applicant can speak foreign languages, if any, particularly Spanish.

The examining board will also give due weight to the following:

The military experience of the applicant, if any.

The ability of the applicant to take proper care of himself and of men committed to his charge under all conditions so far as the same can be judged by the experience and record of the applicant.

The ability of the applicant to command men, so far as can be judged by his experience and record.

The board of examiners is authorized to make such further investigations as in its judgment may be necessary.

It is not intended that the examinations shall be competitive, but the board shall pass upon the qualifications of each applicant and recommend to the Adjutant-General of the Army the rank, if any, which, in its judgment, may properly be conferred upon such applicant.

The examination of officers for the First Regiment is practically completed, and there are few, if any, vacancies in the commissioned list. The officers of the first and second battalions of the Second Regiment will be examined at Chicago, Ill.; the officers of the third battalion at Denver, Colo., Salt Lake City, Utah, San Francisco, Cal., and Portland, Oreg., respectively. The points for examination for officers of the Third Regiment have not as yet been determined upon.

All applications for commissions, or for information concerning them, will be addressed to the Adjutant-General of the Army and be marked "United States Volunteer Engineers." Each applicant will state his age, where born, whether a citizen of the United States, his residence, and educational qualifications. If an applicant for appointment in the engineer brigade, his special technical qualifications must be stated.

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }
NO. 64. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 7, 1898.

By direction of the Secretary of War, the following letter of the American National Red Cross Relief Committee is published to the Army for the information of all concerned, and announcement is made that the War Department recognizes, for any appropriate cooperative purposes, the American National Red Cross as the civil central American committee in correspondence with the International Committee for the Relief of the Sick and Wounded in War:

AMERICAN NATIONAL RED CROSS RELIEF COMMITTEE.

SECRETARY'S OFFICE, ROOM 312,
CENTRAL BANK BUILDING, 320 BROADWAY,
New York, May 20, 1898.

SIR: In accordance with the request made by you to the special committee appointed by the American National Red Cross Relief Committee, during its recent visit to you, the undersigned members of said special committee beg leave to submit the following statements for your consideration:

The American National Red Cross Relief Committee of New York, organized with an unlimited number of cooperating and auxiliary bodies throughout the country, for the purpose of providing financial and material support to the work of the American National Red Cross, Miss Clara Barton, president, begs leave to represent to the Government of the United States as follows, viz:

"1. That the American National Red Cross is the duly incorporated committee representing the work of the Red Cross in its civil capacity, and is recognized as

such by the Government of the United States, the governments of other countries, and the international committee at Geneva.

"2. That we are informed that the said American National Red Cross has given formal notice to the Departments of State, War, and Navy and the Surgeon-Generals of the Army and Navy of its readiness to respond to any call for civil aid to supplement the hospital work of the Army and Navy, in accordance with the provisions of the resolutions of the Geneva conference of 1863 and the Geneva convention of 1864, and their amendments.

"3. That in order to guarantee the fullest effectiveness of the aid thus offered by the Civil Red Cross, this committee hereby gives you official notice that it stands ready, together with other cooperating committees, to furnish all necessary money and material to support the work of the said American National Red Cross as hereinbefore outlined."

We beg to request, Mr. President, that you take the necessary action to have the several departments of the Government duly notified of this financial guaranty of the assistance tendered by the American National Red Cross, to the end that the fullest reliance may be placed upon its offer.

Please favor us with a prompt acknowledgment of this letter and information as to your action thereon.

Respectfully,

LEVI P. MORTON,
HENRY C. POTTER, D.D., LL.D.,
WM. T. WARDWELL,
GEO. F. SHRADY, M. D.,
A. MONAE LESSER, M. D.,
Committee.

The PRESIDENT.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

CIRCULAR, }

No. 16. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 7, 1898.

In order that articles consigned by relatives and friends to soldiers at the front may find prompt delivery, the Secretary of War directs that every facility consistent with the public interest be accorded to the Southern Express Company (office, No. 12 West Twenty-third street, New York) by officers commanding vessels or other means of transportation under the control of the War Department, from Port Tampa, Mobile, New Orleans, or other points of embarkation with a view of expediting the delivery of packages to the soldiers wherever stationed.

It is to be understood that no liability attaches to the Government by reason of loss or delay under this permit, and that no charge is to be made by the express company for transportation furnished by the Government.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant General.*

GENERAL ORDERS, }

No. 67. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 10, 1898.

In order that the volunteer forces now being organized may know what equipments it is proper to make requisitions for, the accompanying lists, prepared in the office of the Chief of Ordnance, showing the equipments of an infantry and cavalry soldier, the horse equipments, and the equipments of a light battery of artillery, are published, by direction of the Secretary of War, for the information and guidance of all concerned:

Equipments of an infantry soldier.

1 blanket bag.	1 gun sling.
1 blanket-bag shoulder straps (pair).	1 haversack.
1 blanket-bag coat straps (pair).	1 haversack strap
1 bayonet scabbard.	1 meat can.
1 cartridge belt, woven, or 1 cartridge box, with waist belt and plate.	1 tin cup.
1 canteen.	1 knife.
1 canteen strap.	1 fork.
	1 spoon.

Equipments of a cavalry soldier.

1 carbine sling and swivel.	1 canteen and strap.
1 pistol holster.	1 haversack and strap (for dismounted service).
1 cartridge belt.	1 meat can.
1 cartridge belt (which is fitted for use of saber attachments for carrying the saber, when called for).	1 tin cup.
1 saber knot.	1 knife.
1 pair spurs.	1 fork.
1 pair spur straps.	1 spoon.

Horse equipments.

1 saddle, comprising—	1 curb bridle, comprising—
1 saddletree, leather covered.	1 headstall.
1 quarter strap (self-adjusting).	1 pair reins.
2 safes and rings for quarter straps.	1 curb bit.
2 cincha straps.	1 curb strap.
1 girth (cincha).	1 watering bridle, comprising—
2 stirrup straps.	1 snaffle bit.
2 stirrups, hooded.	1 pair reins.
6 coat straps.	1 link.
1 carbine boot and straps (used only with caliber .45 carbine).	1 halter, comprising—
1 carbine scabbard and straps (2) used (used only with caliber .30 carbine).	1 headstall.
2 saber straps (used only with caliber .45 carbine).	1 halter strap.
1 pair saddlebags.	1 lariat.
1 saddle blanket.	1 lariat strap.
1 surcingle.	1 picket pin.
	1 side line.
	1 nosebag.
	1 horse brush.
	1 currycomb.
	1 stirrup, with socket for guidon (special).

Equipment (exclusive of ammunition) for a six 3.2-inch field battery, with combined battery wagon and forge.

- 6 3.2-inch B. L. steel guns.
- 6 3.2-inch carriages and limbers.
- 6 3.2-inch caissons and limbers.
- 1 combined forge and battery wagon.
- 13 sets artillery harness for two wheel horses.
- 26 sets artillery harness for two lead horses.

ON EACH CARRIAGE.

- 1 pair bow-spring recoil brakes.
- 1 sponge and rammer, jointed, for bore.
- 2 short rammers and sponges combined for chamber.
- 1 sponge cover, bore sponge.
- 1 breech strap.
- 2 sponge covers, chamber sponge.
- 1 prolonge (section of picket rope).
- 1 combination screw-driver in trail box.
- 1 gunner's gimlet in trail box.
- 1 gunner's reamer in trail box.
- 1 priming wire in trail box.
- 2 primer pouches in trail box.
- 2 lanyards (new pattern) in trail box.
- 1 fuse punch in trail box.
- 1 vent punch in trail box.

WITH EACH CARRIAGE LIMBER.

- 1 front sight under footboards, left-hand compartment.
- 1 breech sight, bronze, under footboards, left-hand compartment.
- 1 breech-sight pouch under footboards, left-hand compartment.
- 2 gunner's haversacks, in ammunition chest.
- 1 front-sight cover, in left-hand footboard compartment.
- 1 sperm oiler, rectangular, brass, under footboards, right-hand compartment.
- 1 wheel grease-can under footboards, right-hand compartment.
- 1 wheel grease-can knife under footboards, right-hand compartment.
- 2 watering buckets, canvas, folding, under footboards, left-hand compartment.
- 1 tool box, under footboards, right-hand compartment, containing—
- 1 screw wrench, 12-inch.
- 1 iron nut wrench, 12 inches long.
- 1 4-inch cold chisel, 8 inches long.
- 1 8-inch hand bastard file.
- 1 hand hammer, 12½-inch handle.
- 1 small steel punch.

Equipment (exclusive of ammunition) for a six 3.2-inch field battery, with combined battery wagon and forge—Continued.

1 neck yoke.
1 doubletree.
2 singletrees.
2 paulins, 12 feet by 12 feet, dyed duck.
1 cushion, canvas and hair.
1 padlock for ammunition chest.

ON EACH CAISSON BODY.

1 breech cover.
1 combination tompon and muzzle cover; the latter in the breech cover, which is secured by its straps and buckles to the spare-wheel axle toggle.
1 maneuvering handspike.
2 shovels, long handled.
2 spades, short handled.
2 pickaxes, handled.
2 axes, handled.
2 lanterns, with Cranston attachment.
1 prolonge (section of picket rope).
1 spare pole.
1 spare wheel.
2 paulins, 12 feet by 12 feet, dyed duck.
2 padlocks for ammunition chests.
1 cushion, canvas and hair.

WITH EACH CAISSON LIMBER.

1 wheel grease can.
1 wheel grease-can knife.
2 paulins, 12 feet by 12 feet, dyed duck.
1 neck yoke.
1 doubletree.
2 singletrees.
2 watering buckets, canvas, folding.
1 cushion, canvas and hair.
1 padlock for ammunition chest.

ON BODY OF FORGE AND BATTERY WAGON.

2 water buckets (galvanized sheet iron), inside of wagon body.
1 prolonge (section of picket rope), inside of wagon body.
2 lanterns, with Cranston attachment, inside of wagon body.
1 oil can, sperm (2½ pints), inside of wagon body.
1 oil can, coal (3 gallons), inside of wagon body.
1 grindstone, arbor, crank, and frame (iron), complete, inside of wagon body.
1 lunette prop.
2 jackscrews.
1 hammer, sledge, medium.
1 anvil (100 pounds).
1 vise, forge.
2 padlocks (and keys).

SADDLER'S TOOLS (CHEST).

1 saddler's tool chest, handled, (in chest compartment).
1 knife, round.

1 knife, shoe.
1 draw gauge.
6 awls, stitching, handled (assorted).
1 rivet set (two holes).
1 revolving punch, four tubes, Nos. 4, 5, 6, and 7.
1 claw tool.
1 pair compasses, 6-inch.
1 creaser (wood).
1 cutting nippers, 10-inch.
1 pair shears, 6-inch blade.
1 hammer, riveting.
1 edge tool, No. 2.
1 rule (2-foot), No. 18 (2-fold).
1 oilstone.
1 pliers (large), 6-inch.
1 driving punch, No. 5.
1 stitching horse, complete.
2 small canvas bags for small stores.

CARPENTER'S AND WHEELWRIGHT'S TOOLS (CHEST).

1 carpenter's and wheelwright's tool chest, handled (in chest compartment).
1 brace with twelve bits, assorted.
1 drawing knife, 12-inch.
1 handsaw, 20-inch.
1 rip saw, 26-inch.
1 hand ax, No. 7.
1 hammer, claw.
4 chisels, framing—¾-inch, 1-inch, 1½-inch, and 2-inch.
3 gouges, framing—¾-inch, 1-inch, 1½-inch.
1 screw wrench, 12-inch.
1 plane, jack.
1 plane, smoothing.
1 spokeshave.
1 rule (2-foot), No. 72, 4-fold, Stanley.
10 brad awls, assorted, with (and contained in) handle.
1 square, trying, 9-inch.
1 awl, scribing.
12 files, saw, assorted—4-inch and 6-inch.
1 rasp, wood, 10-inch.
1 file, wood, 10-inch.
1 oiler, brass.
1 oilstone, 8-inch.
1 gauge.
1 compasses, 10-inch wing.
1 table vise.
1 pincers, small.
1 mallet, wood.
6 auger bits—¾-inch, 1-inch, 1½-inch, 1¾-inch, and 2-inch.
2 screw-driver bits—¾-inch and 1-inch.
1 patent auger handle.
3 file handles, iron—4-inch flat, 4-inch round, 5-inch.
1 linen tapeline (Chesterman, Sheffield), 100 feet.
2 small canvas bags for small stores

Supplies, cleaning material, spare parts, etc., in battery wagon body.

SUPPLIES.

[Expendible.]

2 sides leather, bridle (24 pounds).
 2 sides leather, harness (40 pounds).
 2 pounds beeswax.
 3 pounds black wax.
 36 buckles, iron, roller—four $\frac{1}{4}$ -inch, four $\frac{1}{2}$ -inch, eighteen $\frac{3}{4}$ -inch, four 1-inch, two $1\frac{1}{2}$ -inch, and four $1\frac{3}{4}$ -inch.
 2 papers tacks, copper.
 3 papers tacks, iron—one 8-ounce, one 12-ounce, and one 18-ounce.

3 pounds rivets and burrs, copper—one $\frac{1}{4}$ -inch No. 10 belt, one $\frac{1}{2}$ -inch No. 10 belt, and one 1-inch No. 8 oval head.
 5 pounds thread, shoe, No. 10.
 5 needles, collar.
 50 needles, saddler's, assorted.
 4 thimbles.
 10 pounds nails.
 1 gross wood screws.
 6 pieces sash cord, braided ($13\frac{1}{2}$ pounds).
 3 gallons coal oil.
 50 pounds wheel grease.

Material for cleaning and preservation.

[Expendible.]

4 gallons neatsfoot oil (2 cans).
 2½ pints sperm oil.
 20 pounds harness soap.
 10 pounds sponge.
 4 quires sandpaper.
 6 quires emery cloth.
 2 pounds rotten stone.
 25 pounds tripoli.

SPARE PARTS—GUN.

[Expendible.]

4 carrier latch pins.
 8 carrier latch-pin springs.
 2 gas-check pads.
 4 steel split rings.

SPARE PARTS—CARRIAGE.

[Expendible parts marked.]*

1 bow-spring brake.
 2 singletrees.
 1 doubletree.
 1 neck yoke.
 4 pole pads.*
 6 linchpins.*
 4 linch washers.*
 4 ammunition chest bolts and nuts.*
 4 turnbuckles for ammunition chests.*
 4 breech-strap eye washers.*
 2 nuts for assembling bolts for lazy tongs.*
 4 shoes for caisson brakes.*
 4 lid props.*
 4 lid prop-plate pivots.*
 1 pintle key and chain.*

SPARE PARTS—HARNESS.

[Expendible parts marked.]*

6 breast straps.
 6 bridles and bits, artillery.
 4 collars, steel.
 8 girths, hair, artillery, 4 whel, 4 lead.
 6 halters, artillery.
 50 halter straps.*

6 martingales with cincha straps.
 2 neck-yoke pads.*
 10 surcingles, Nos. 1, 2, and 3, as called for.
 4 traces, lead, artillery.
 traces, wheel, artillery.

SPARE PARTS—STEEL COLLAR.

[Expendible.]

2 trace plates.
 4 draft springs.
 4 pad hooks.
 2 pad bolts and nuts.
 2 nuts for pad bolts.
 2 buckle latches.
 6 buckle springs.
 6 bolts and nuts for top connection.
 4 nuts for top-connection bolts.
 6 bolts and nuts for bottom of collar.
 2 collar wrenches.
 4 nuts for bottom bolts.
 6 bolts and nuts for extension.
 4 nuts for extension bolts.
 6 bolts and nuts for trace plate.
 4 nuts for trace-plate bolts.
 12 back straps.
 8 back strap connections.
 6 collar pads, canvas.

TOOLS AND IMPLEMENTS.

[Expendible parts marked.]*

3 gunner's gimlets.
 3 vent punches.
 3 priming wires.
 4 fuse punches.
 24 fuse-punch pins.*
 1 obturator spindle-nut wrench.
 4 whips, artillery.
 2 pickax handles.*
 2 ax helves.*
 4 short rammers and sponges, combined.
 1 sponge and rammer, jointed.
 2 sponge heads and sponges for short rammers and sponges, combined.*
 1 rammer head for short rammers and sponges, combined.*
 2 sponge heads and sponges for jointed sponge and rammer.*
 1 rammer head for jointed sponge and rammer.*

*Material for cleaning and preservation—Continued.***ON LIMBER OF FORGE AND BATTERY WAGON.**

1 neck yoke.	1 chisel, handled (for cutting hot iron).
1 doubletree.	1 chisel, handled (for cutting cold iron).
2 singletrees.	1 fore punch and creaser (on one handle).
2 paulins (12 feet by 12 feet).	1 chisel, hand, cold.
2 watering buckets, canvas folding, in footboard compartment.	1 pritchel.
1 wheel grease can, in footboard compartment.	1 shoeing rasp, 16-inch.
1 wheel grease-can knife, in footboard compartment.	1 flat bastard file, 12-inch.
1 canvas coal bag (3 bushels).	1 round punch, hand.
200 pounds horseshoes, in chest.	1 hardie.
50 pounds horseshoe nails, in chest.	1 screw wrench, 12-inch.
	2 shoeing knives.
	1 toe knife.
	1 shoeing pincers.
	1 clinching iron.
	1 nail punch.
	1 rule (2-foot), wood, 4-fold, No. 72, Stanley.
	1 square, steel.
	1 oiler, brass.
	1 shoeing box (sole leather).
	1 file handle, iron, 6-inch.
	1 wrench, small, for forge.
	1 fire rake.
	1 fire shovel.
	2 small canvas bags, for nails and small stores.
	1 padlock (and key).

BLACKSMITH'S TOOLS (FORGE CHEST).

1 forge, portable, Empire (modified for Army use).
 2 aprons (leather), smith's.
 1 hammer, hand, handled.
 1 hammer, riveting.
 1 hammer, shoeing.
 1 pair tongs, for holding $\frac{1}{2}$ -inch iron.
 1 pair tongs, for holding $\frac{1}{4}$ -inch iron.
 1 pair tongs, smith's, 11-inch.

Equipment for the personnel of a light battery of six guns.

121 revolvers.	100 halter headstalls. } Making halters
121 pistol holsters.	100 halter straps. } complete.
121 cartridge boxes or pouches for revolvers.	50 horse brushes.
13 sabers, light artillery.	100 lariats.
Saber belts, complete—	22 links.
13 saber belts.	100 nosebags.
13 saber attachments.	100 picket pins.
13 belt plates.	100 surcingle.
108 waist belts and plates.	121 canteens.
21 saddles, complete.	121 canteen straps.
21 saddlebags, pairs.	121 haversacks.
100 saddle blankets.	121 haversack straps.
21 spurs, pairs.	121 knapsacks, light artillery.
21 spur straps, pairs.	121 knives.
21 bridles, curb.	121 forks.
100 bridles, watering.	121 spoons.
50 currycombs.	121 meat cans.
20 girths or cinchas, extra.	121 tin cups.

This order will take the place of General Orders, No. 41, current series, which is revoked.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
 No. 68. }

HEADQUARTERS OF THE ARMY,
 ADJUTANT-GENERAL'S OFFICE,
 Washington, June 13, 1898.

By direction of the Secretary of War, the following movements are ordered in connection with the organization and recruitment of the brigade of Volunteer Engineers:

FIRST REGIMENT.

1. The headquarters of the First Regiment of United States Volunteer Engineers are provisionally established at New York City (335 Broadway), at which point the colonel, lieutenant-colonel, and majors will take station.

2. Majs. John S. Sewell, Louis Duncan, and James D. Ferguson; Capts. Ira A. Shaler, Eugene Ellicott, Merrit H. Smith, Azel Ames, jr., Arthur Haviland, Charles Parker Breese, and First Lieut. Joseph A. Steinmetz will act as recruiting officers for the regiment, under instructions of the regimental commander.

3. Recruiting offices will be established at Boston, Mass.; New York City, N. Y.; Philadelphia, Pa.; Baltimore, Md.; Norfolk, Va.; and the following assignment of recruiting officers is made:

To the Boston office: Maj. John S. Sewell and Capt. Azel Ames, jr.

To the New York office: Maj. James D. Ferguson and Capt. Ira A. Shaler.

To the Philadelphia office: Capt. Eugene Ellicott and First Lieut. Joseph A. Steinmetz.

To the Baltimore office: Maj. Louis Duncan and Capt. Arthur Haviland.

To the Norfolk office: Capt. Charles Parker Breese.

Recruits for this regiment will be examined by the surgeons attached to the United States recruiting offices at the respective points above named, or by a surgeon of the regiment, under the instructions governing the medical examinations of recruits.

4. The rendezvous for the regiment is established at Camp Townsend, near Peekskill, N. Y., the governor of the State of New York having assented to its use.

5. Recruits who have passed a medical examination will be forwarded in detachments to Camp Townsend, at which point they will be mustered into the service of the United States as rapidly as companies and battalions are organized.

6. Maj. James B. Burbank, Fifth Artillery, is hereby detailed as mustering officer for the regiment; he will also act as quartermaster and commissary, for the purpose of subsisting the recruits from the time of their enrollment to the time of rendezvous, and for their transportation from the place of enrollment to the place of rendezvous. Upon receipt of this order, Major Burbank will communicate by telegraph with the colonel of the regiment, and thereafter will hold himself in readiness to proceed to Peekskill at such time as companies and battalions may be ready for muster in.

The travel enjoined is necessary for the public service.

7. The Subsistence Department will contract for the subsistence of the men of this regiment at Camp Townsend, at a price not to exceed 40 cents per day per man, until the muster in of the regiment has been completed, after which it will be regularly supplied with rations in kind.

SECOND REGIMENT.

1. The headquarters of the Second Regiment United States Volunteer Engineers are provisionally established at Chicago, Ill. (1637 Indiana avenue), at which point the colonel, lieutenant-colonel, Major Savage, and Major Pinckard will take station.

2. Recruiting offices will be established at Springfield, Ohio; Cincinnati, Ohio; Indianapolis, Ind.; Chicago, Ill.; St. Paul, Minn.; Omaha, Nebr.; Denver, Colo.; Salt Lake City, Utah; San Francisco, Cal.; and Portland, Oreg., to which recruiting officers or agents will be assigned by the regimental commander.

3. The rendezvous for the first and second battalions of the regiment is established at Fort Sheridan, near Chicago, Ill.; for the third battalion at the Presidio of San Francisco, Cal.

4. Maj. Richard H. Savage will proceed from Chicago, Ill., to Springfield, Ohio; Cincinnati, Ohio; Indianapolis, Ind.; and Fort Sheridan, Ill. Maj. Edward L. Pinckard from Chicago, Ill., to St. Paul, Minn.; Omaha, Nebr.; and Fort Sheridan, Ill. Maj. William C. Langfitt from San Francisco, Cal., to Portland, Oreg.; Salt Lake City, Utah; Denver, Colo., and return to San Francisco. Capt. Robert P. Johnston from Key West, Fla., to Salt Lake City, Utah, and thence to San Francisco, Cal., all on duty connected with the recruitment of the regiment under instructions from the regimental commander.

Lieut. Col. Edward Burr will proceed to Fort Sheridan, Ill., and report to the regimental commander.

First Lieut. Charles W. Parker, quartermaster, will proceed from Washington, D. C., to Fort Sheridan, Ill., and report to his regimental commander for duty.

5. Capt. C. M. Rockefeller, Ninth Infantry, is hereby detailed as mustering officer for the companies recruited at Springfield, Ohio; Cincinnati, Ohio, and Indianapolis, Ind., which will form the first battalion; First Lieut. C. C. Ballou, Twelfth Infantry, for the companies recruited at Chicago, Ill.; St. Paul, Minn., and Omaha, Nebr., which will form the second battalion; First Lieut. John M. Barber, Seventh Infantry, for the company at Denver, Colo.; First Lieut. W. R. Dashiell, Twenty-fourth Infantry, for the company at Salt Lake City, Utah; First Lieut. D. J. Rumbough, Third Artillery, for the company at San Francisco, Cal., and Second Lieut. Kenneth Morton, Third Artillery, for the company at Portland, Oreg., which four last-named companies will form the third battalion; they will also act as quartermaster and commissary for the purpose of subsisting the recruits from the time of their enrollment to

the time of muster in, and for their transportation from the place of enrollment to the place of rendezvous. Upon receipt of this order the mustering officers above named will communicate by telegraph with the colonel of the regiment, and thereafter will hold themselves in readiness to proceed to such points as the colonel may indicate, and at which a body of recruits, approximating the size of a company, is awaiting muster-in to the United States service. A surgeon or an assistant surgeon or the regiment will also proceed with the mustering officers to the said points.

6. As soon as a company has been organized and mustered into service the mustering officer will direct its transportation to the place of rendezvous of the battalion of which it is to be a part. For this purpose the mustering officers will provide themselves with the necessary transportation requests and other blanks and will make timely requisition for such travel rations as may be necessary. Commanding officers of regiments will so arrange their itinerary as to involve as little travel as possible.

The travel enjoined is necessary for the public service.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS,)

No. 70.)

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 16, 1898.

II. By direction of the Secretary of War, the following paragraph is added to the Regulations, viz:

1349a. So far as relates to disbursements at the Philippine Islands and other points, including Alaska, beyond the boundary of the United States proper, and for the convenience of the paymaster in obtaining ready money, as well as for the accommodation of both officers and men at such distant places, a check may be drawn for a portion of the pay due the soldier (or officer), in which case it will be drawn in favor of the soldier (or officer), and the object or purpose will be stated as "part pay for month of ———;" if for any sum which the soldier (or officer) may desire in exchange for money after he has been paid, the check will be drawn by the paymaster in favor of himself and indorsed by him payable to the order of the soldier (or officer), and the object or purpose will be stated as "to obtain cash to make payments at a distance from a depository."

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

[Circular letter.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., June 19, 1898.

SUPPLEMENTARY INSTRUCTIONS TO MUSTERING OFFICER.

The following instructions, supplementary to the "Instructions to mustering officers" of April 22, 1898, are published for the guidance of mustering officers and for the information of all concerned.

1. In all matters pertaining to the muster-in of volunteer organizations, the officers and men, when mustered into the service of the United States, are subject to the orders of the mustering officer, who is executing the orders of the Secretary of War.

2. The enlistment (enrollment) of all men will hereafter be made on the blank form (A. G. O. No. 8, Vols.) "Description, physical record, and enlistment," which will be supplied by the Adjutant-General of the Army to the governors of States for the use of duly authorized persons in organizing companies of volunteers for the service of the United States. The "Description" on the blank will be filled in by the recruiting or enrolling officer, and the "Physical record," after a careful medical examination has been made of the man, by the authorized examining surgeon before the organization leaves the place of enlistment, as the United States will not assume any expense for subsistence or transportation to the State or regimental rendezvous unless this requirement is strictly complied with.

The blank form will also be used for the description and physical record of all officers.

3. No minor will be enlisted without the written consent of parents, or a *legally appointed guardian*, and the certificate on the blank form (A. G. O. No. 8, Vols.) "Description physical record and enlistment" must be properly filled in and signed.

4. When there is no medical officer of the Army (regular or volunteer) available to examine the men, the mustering officer will employ the services of a physician of well-established capacity and character to make the required medical examination of each officer and man presented for enlistment at a rate of compensation not exceeding 40 cents for each man examined, and he will prepare the accounts for such examinations in accordance with paragraph 1458, Army Regulations, on forms supplied by the Surgeon-General.

The medical officer will examine the men *stripped* in the presence of the mustering officer.

5. The muster-in of organizations will, as a rule, take place at the State or regimental rendezvous designated by the governor of the State, but when the number of companies called for from a State is less than a battalion the mustering officer will muster-in the companies at the places of their organization, provided that the companies are at least of the minimum strength authorized by law, or by regulations or special directions of the War Department. The officers of a company present for duty will not be mustered into service until the company organization is completed and they will then be mustered with it.

6. The enlistment papers of the officers and men accepted into service will be forwarded by the mustering officer with a copy of the muster-in roll to the Adjutant-General of the Army.

7. The company muster-in rolls will be used for the field staff and band, which latter, if organized, will be taken from the strength of the regiment, as provided for by paragraph 245, Army Regulations. The officers' muster-in roll will be used for the muster of individual officers.

8. The "Description, physical record, and enlistment" blanks of the officers and enlisted men of each company, etc., will be arranged in the order in which their names are to appear on the muster-in rolls. The description, etc., of each officer and enlisted man will be transcribed to the roll from the enlistment paper. The columns under the head of "Enrolled" should not be filled in on the muster roll in the cases of officers, their entry into service being governed by date of muster-in and not by date of enrollment. The examining surgeon will comply with the note on muster-in rolls relative to noting in the column for remarks on roll of all defects discovered in the medical examination, not sufficient to reject, but which might be aggravated by the soldier's duties.

9. In addition to the officers who may be mustered in during the organization of a regiment, as provided for in paragraph 7 of the Mustering Regulations, the sergeant-major, quartermaster-sergeant, and one hospital steward may be mustered in on the same roll, to aid in recruiting the regiment and in other necessary business.

10. The services of civilian physicians engaged on boards for the examination of medical officers, as provided for in paragraph 9 of the Mustering Regulations, cease upon the completion of their duties on such boards, and medical officers who have passed the required examinations will alone assist the medical officer of the United States Army in the physical examination of men of their own and other organizations.

11. Mustering officers will instruct the officers of the commands mustered into the service by them as to the manner in which requisitions are made upon the supply departments of the Army, and invite special attention to the provisions of the Army Regulations bearing on the subject.

12. A careful reading of, and compliance with, the notes and instructions printed on the enlistment blank and muster-in roll is enjoined on all concerned.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 75. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 22, 1898.

By direction of the Secretary of War, the following is published for the information and guidance of officers of the Volunteer Army of the United States in accounting for ordnance and ordnance stores which may in any manner come into their possession, and their careful attention is invited thereto:

All officers of the Army to whom ordnance property is issued, or who may otherwise come into possession of such property, are required to make quarterly returns thereof to the Chief of Ordnance, United States Army, Washington, D. C., on the following dates, each year, namely:

March 31, June 30, September 30, and December 31.

Should an officer resign or be relieved from command, and transfer his responsibility before any of these dates, he will, in such case, render a closing return showing the transaction for part of the quarter, embracing the period from his last return to the date of said transfer. The receipt of the officer succeeding him in command for the property on hand will be a voucher to said return.

Property returns should exhibit in detail the transactions that take place during the period for which they are rendered. All stores invoiced to or received by an officer should be entered on the debit side of the return, according to the date of the invoice or other voucher, which should be numbered 1, 2, 3, etc.

Where stores are received without invoices they are taken up on the return per statement or certificate of the accounting officer as to how they came into his possession. Stores captured from the enemy, picked up on the march, or found in camp, are accounted for in the same manner.

Every entry on the face of the return should have a corresponding voucher, whether it be an invoice, certificate, or statement authenticating the transaction.

All stores disposed of, whether issued, condemned, lost in action, expended, or charged against enlisted men on muster and pay rolls, should, in like manner, be entered on the credit side of the return, vouched for and dropped accordingly.

Before charging an enlisted man with the money value of stores lost or damaged, there should be clear proof of carelessness or neglect on his part. Should the soldier admit the justice of the charge when signing the rolls it will, however, be deemed sufficient warrant for making it, without further proof or inquiry. In all cases where charges are made, a statement thereof should be sent with the return from which the stores are dropped, enumerating the stores charged, giving the names of the enlisted men, amounts charged, date of the rolls, with remarks opposite each name stating how the stores were disposed of, whether lost through neglect, damaged, or otherwise.

Stores lost in action should be accounted for by the certificate of the responsible officer, setting forth the date and place of the engagement and the attendant circumstances, and the affidavit of one or more enlisted men cognizant of the facts, to the effect that the loss was unavoidable, having been caused by an attack of the enemy in superior force, which could not be resisted, or like event. In such cases the details of the engagement are given, including the number of killed, wounded, etc.

Stores abandoned for want of transportation must be accounted for by the certificate of the responsible officer as to the facts, supported by the order of the officer directing such action, as also by the certificate of the quartermaster, whose duty it was to furnish transportation, that it was impossible for him to do so. Such transactions are only allowed upon conclusive proof that the loss sustained was wholly unavoidable.

When stores become unserviceable or unfit for use, they should be submitted for the action of an inspector and disposed of as directed, a copy of the inventory and inspection report being sent with the property return as a voucher. Surplus serviceable stores can, however, be turned over to the nearest ordnance officer upon order of the department or other commander.

Stores expended, such as ammunition and material used in repairs or completion of arms and accouterments, are dropped from the return on abstract of expenditures signed by the responsible officers.

Where the vouchers exceed the number of lines on the debit or credit side of the return an abstract should be made, embracing thereon all the transactions and the aggregate of the stores taken up on the return or dropped therefrom accordingly.

To illustrate the method of preparing a quarterly return, a sample copy is appended hereto, showing the transactions likely to occur in a company or other organization. The principle can be applied to any kind of return, and will, if adhered to, enable officers to promptly render their returns, thus avoiding delay in the final settlement of their accounts.

Failure to make returns as herein stated will subject officers to stoppage from their pay of the money value of the property issued to them by the United States. All such delinquencies will be promptly reported, in order that the United States may be reimbursed for said property.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

Quarterly return of ordnance and ordnance stores received, issued, and remaining on hand in Company A, First Regiment of Alabama Volunteers, for the quarter ended June 30, 1898.

Date.	Number of voucher.	Second quarter, 1898.	Class VI.— Small arms, rifles, revolv- ers, etc.				Class VII.—Equipments.																Class VIII.— Ammu- nition.	
			Springfield rifles, cal- iber .45.				Blanket bags. Blanket bag shoulder straps, pairs.	Blanket bag coat straps, pairs.	Bayonet scabbards.	Cartridge belts.	Canteens.	Canteen straps.	Gun slings.	Haversacks.	Haversack straps.	Meat cans.	Tin cups.	Knives.	Forks.	Spoons.	Rifle ball cartridges, caliber .45.			
1898. Apr. 20	1	Received from the governor of Ala- bama.....	60				60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	5,000		
May 25	2	Received from Lt. W. S. Pierce, Ordnance De- partment.....	20				20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	2,000		
		Total to be accounted for.....	80				80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	8,000		
28	3	Issued to Lieut. J. S. Prince, Second Alabama Volun- teers.....	5				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	500		
June 2	4	Condemned and dropped by order of inspector.....					10	10																
5	5	Expended, as ab- stract.....																				1,500		
18	6	Lost in action— battle of Havana.	15				15	15	15	15	15	15	15	15	15	15	15	15	15	15	15			
25	7	Charged on muster and pay rolls, as per statement...	1				5	5	5															
		Total issued and ex- pended.....	21				35	35	25	20	20	20	20	20	20	20	20	20	20	20	20	2,000		
		Remaining on hand to be ac- counted for on next return.....	59				45	45	55	60	60	60	60	60	60	60	60	60	60	60	60	6,000		

I certify that the foregoing return exhibits a correct state of the ordnance and ordnance stores pertaining to Company A, First Alabama Volunteers, in my charge, during the quarter ended June 30, 1898.

Captain Commanding Company A, First Alabama Volunteers.

(STATION:) TAMPA, FLA., June 30, 1898.

GENERAL ORDERS, }
No. 76.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 22, 1898.

I. By direction of the Secretary of War, the following allowance of horses for mounts, wheel transportation, tentage, etc., for the Medical Department of the Army in the field is authorized:

Horses or mounts.

	H. S.	A. H. S.	Privates.
To each regiment of infantry	1		1
To each artillery battalion (8 light batteries)		3	1
To each cavalry regiment	1		2
To each corps headquarters	1		2
To each division headquarters	1		1
To each brigade headquarters	1		1
To each division ambulance company	7	3	12
To each corps reserve ambulance company	7	3	12
To each division field hospital	2	2	6
To each corps reserve hospital	2	2	6

WHEEL TRANSPORTATION.

One ambulance to 400 men of the effective force. One 4-horse wagon to 600 men of the effective force. One 4-horse wagon to each brigade.

TENTAGE.

For each ambulance company: Seventeen common tents for privates, 2 common tents for noncommissioned officers.

For each division field hospital: Fifteen common tents for privates, 2 common tents for noncommissioned officers, 1 common tent for supplies, hospital tents on a basis of 6 patients (beds) to each tent.

Hand litters, with slings, to be furnished by the Quartermaster's Department: One for each company, 2 for each ambulance.

Requisitions for the necessary articles of camp and garrison equipage, tools, etc., will be based on the official allowances for companies of infantry.

Requisitions for the before-mentioned supplies will be sent in separately for divisions, with statement whether or not the division organization is complete.

Horses and wheel transportation will be furnished by the Quartermaster's Department, and horse equipments by the Ordnance Department.

II. Commanding generals of army corps are directed to detail, upon the application of chief surgeons of corps, two line officers not above the grade of first lieutenant for duty as acting assistant quartermasters with the medical service of each division.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 82.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 27, 1898.

I. By direction of the Secretary of War, the attention of commanding generals of army corps in the field is directed to the fact that the act of Congress approved June 2, 1898 (General Orders, No. 62, June 3, 1898, from this office), fixes the number of hospital stewards, Hospital Corps, United States Army, at 200, and that owing to the number of hospital stewards now on duty outside of the limits of the army corps in the field, 10 only will be available for duty with each army corps, which number under the law can not be exceeded.

It is important that it should be fully understood that the hospital stewards mustered in with each volunteer regiment can be detached from their regiments and assigned to duty at the discretion of the commanding generals of army corps.

II. By direction of the Secretary of War, the following is published to the Army for the information and guidance of all concerned:

During the existing war the commanding officers of engineer companies, who are serving with their companies, away from the headquarters of the battalion of regular engineers, are authorized to appoint sergeants, corporals, and first-class privates of their companies, and, when necessary, to reduce such enlisted men to the lower

grades. This authority, however, will not affect the status of enlisted men who are not serving with these companies.

Noncommissioned officers of permanent independent volunteer batteries or companies will be appointed by the commanding officers thereof and will be furnished with a certificate of rank signed by the battery or company commander. When these organizations are independent only temporarily, the commanding officer will make temporary appointments of noncommissioned officers and the permanent appointments will be made in the regular way when they are formed into regiments.

III. By direction of the Secretary of War, men who are sick in the division or brigade hospitals of their command, at date of muster, will be mustered on the muster rolls and the pay rolls of the organization to which they belong as "present," with the remark "sick in division or brigade hospital." If the organization to which they belong be detached from the corps, division, or brigade, they will be mustered on detachment rolls (Form No. 2), a separate roll being prepared for each regiment. (See Note 1 on the rolls and A. R. 785, the provisions of which must be strictly observed.)

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 84. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, June 29, 1898.

1. With the approval of the Secretary of War, an expenditure of not to exceed ten rounds of ammunition per month for each officer and enlisted man is hereby authorized. In the training of volunteer troops great attention will be given to company, battalion, regimental, and brigade drill and exercises, especially to such formations and movements as will render the men rapidly efficient for attack and defense, marching in line of battle, by the flank, changes of front, plying and deploying, and picket and outpost duty. Especial instructions will be given officers and men in connection with the formation and use of advance and rear guards, as well as in the necessary precautions to be taken to guard against surprises and ambushes, and the use of flankers and flanking detachments and columns for bodies of troops operating in the presence of the enemy. Officers and men will also be instructed in the General Rules for Fire Discipline, commencing at paragraph 534, Infantry Drill Regulations.

2. It should be borne in mind that the object of all military instruction and drill is to teach officers and enlisted men, individually and as organizations, as quickly as possible, the best methods of defeating the enemy with the least sacrifice of the lives of our men. In order to insure this result, the effective use of firearms in battle is necessary, and the rapid and thorough instruction of men in the use of their arms should in every possible way be expedited.

3. The instruction of volunteer troops and recruits which has been previously ordered by corps, division, and brigade commanders will include aiming, position drill, and target practice. Regimental schools of instruction for officers, under the personal direction of regimental commanders, and schools of instruction for noncommissioned officers and intelligent privates, directly under the supervision of company commanders, will be held not less than twice a week. Special inspections will be made by competent officers to determine the number of men in all organizations who have not had practice with their rifles, and such men as have not had this practice will be so instructed without delay. Blank ammunition should be procured for preliminary firing, but where this can not be obtained, actual practice with ball cartridges will be carried out at once, if it can be done with perfect safety to everybody in and out of the Army. Frequent inspections will be made to insure the carrying out of these instructions, the results of such inspections to be duly reported; and when for any reason other than campaigning these instructions have not been fully carried out, a special report will be made giving the reason therefor, which report will be transmitted by corps commanders to these headquarters. The attention of inspectors-general is directed to the carrying out of these instructions.

4. The Ordnance Department is not prepared to furnish to so large an army as the present one all the necessary material for target practice, such as frames, markers, etc. It is thought, however, that these can be improvised, while the Ordnance Department can furnish, on requisition, paper targets that are ordinarily used for this purpose. At permanent camps where an officer can be detailed in charge of rifle practice, it will be practicable to furnish all the frames and other material required, although this can not be done generally, and it will be the exception and not the rule.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS. }

No. 85. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 1, 1898.

By direction of the Secretary of War, the following movements are ordered in connection with the organization and recruitment of the brigade of volunteer engineers:

FIRST REGIMENT.

The headquarters of the First Regiment United States Volunteer Engineers are removed from New York City to Camp Townsend, near Peekskill, N. Y., to which point the colonel and all officers, not otherwise detached, will repair without delay. The travel enjoined is necessary for the public service.

THIRD REGIMENT.

The headquarters of the Third Regiment, United States Volunteer Engineers, are temporarily established at No. 2728 Pennsylvania avenue, Washington, D. C., at which point the colonel, the majors, the regimental quartermaster, and the regimental adjutant will take temporary station.

Recruiting offices will be established at Richmond, Va.; Charlotte, N. C.; Savannah, Ga.; Mobile, Ala.; New Orleans, La.; Austin, Tex.; Albuquerque, N. Mex.; Nashville, Tenn.; Louisville, Ky.; St. Louis, Mo., and Little Rock, Ark., to which points recruiting officers will be assigned by the regimental commander. Recruits for the regiment will be examined by the surgeons attached to United States recruiting offices, if there are any at any of the points above named, or by the surgeon or an assistant surgeon of the regiment or by a local physician, under the provisions of General Orders, No. 71, June 17, 1898, from this office.

The rendezvous for the regiment is established at Jefferson Barracks, Mo.

Lient. Col. Eugene J. Spencer will proceed from St. Louis, Mo., to Louisville, Ky., and return; Maj. Edgar Jadwin from Washington, D. C., to Little Rock, Ark., Austin, Tex., Albuquerque, N. Mex., and Jefferson Barracks, Mo.; Maj. Henry C. Davis from Washington, D. C., to Mobile, Ala., New Orleans, La., Nashville, Tenn., and Jefferson Barracks, Mo.; and Maj. Willoughby Walke from Washington, D. C., to Richmond, Va., Charlotte, N. C., Savannah, Ga., and Jefferson Barracks, Mo.; all on duty in connection with the recruitment of the regiment under instructions from the regimental commander.

Recruits who have passed medical examination will be forwarded in detachments to Jefferson Barracks, Mo., at which point they will be mustered into the United States service as rapidly as companies are organized.

The recruiting officers above named will also act as quartermasters and commissaries, for the purpose of subsisting the recruits from the time of their enrollment to the time of rendezvous and for their transportation from the place of enrollment to the place of rendezvous.

First Lieut. Ralph Harrison, Second Cavalry, is hereby detailed as mustering officer for the regiment.

The travel enjoined is necessary for the public service.

By command of Major-General Miles.

H. C. CORBIN, *Adjutant General.*

GENERAL ORDERS, }

No. 87. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

I. The Army is engaged in active service under climatic conditions which it has not before experienced.

In order that it may perform its most difficult and laborious duties with the least practicable loss from sickness, the utmost care consistent with prompt and efficient service must be exercised by all, especially by officers.

The history of other armies has demonstrated that in a hot climate abstinence from the use of intoxicating drink is essential to continued health and efficiency.

Commanding officers of all grades and officers of the medical staff will carefully note the effect of the use of such light beverages—wines and beer—as are permitted to be sold at the post and camp exchanges, and the commanders of all independent commands are enjoined to restrict, or to entirely prohibit, the sale of such beverages if the welfare of the troops or the interests of the service require such action.

In this most important hour of the nation's history it is due the Government from all those in its service that they should not only render the most earnest efforts for its honor and welfare, but that their full physical and intellectual force should be given to their public duties, uncontaminated by any indulgences that shall dim, stultify, weaken, or impair their faculties and strength in any particular.

Officers of every grade, by example as well as by authority, will contribute to the enforcement of the order.

II. With a view to avoid extreme suffering among wounded horses or mules on the field of battle, it is hereby ordered that a veterinary surgeon, or some other person detailed by the commanding officer, will accompany troops in an engagement, whose duty it will be to put an end to the agonies of all horses or mules that in his judgment are suffering to a degree requiring such action on his part.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 89. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 6, 1898.

The following letter from the Postmaster-General regarding the establishment of a more complete system for the military mail service is published for the information and guidance of all concerned, and the suggestions contained therein are approved by the Secretary of War:

OFFICE OF THE POSTMASTER-GENERAL,
Washington, D. C., June 25, 1898.

SIR: With the movement of troops and the establishment of camps or places of rendezvous in the existing war the Post-Office Department made such immediate arrangements for the postal service in connection therewith as the exigencies required and permitted.

As soon as practicable after the opening of hostilities Congress was asked by this Department to pass an act making such special provision and conferring such authority as the emergency demanded, and Congress accordingly passed a bill entitled "An act to authorize the establishment of post-offices at military posts or camps," a copy of which I have the honor to inclose herewith.

Pursuant to this act, I beg to invite your cooperation in the establishment of a more complete system for the military mail service, and suggest the following general plan:

1. The Postmaster-General shall establish a post-office or branch post-office at every military post or camp which has been, or may be, created during the existing war.

2. Such post-office or branch post-office shall be under the immediate charge and direction of an official of the postal service detailed for that purpose by the Postmaster-General, and who shall be designated as "Postal superintendent in charge."

3. The Secretary of War shall provide for the designation of an officer of the Regular or Volunteer Army attached to the general headquarters of the camp, who shall represent the military organization in its relations to the postal service, and whose duty it shall be to keep the postal superintendent in charge advised of the movement of troops to and from the camp.

4. The regimental mail service shall be in charge of the adjutants of regiments, who shall be held responsible for the collection and distribution of the mail within the several companies. Such detail of noncommissioned officers and privates shall be made as may be necessary for this purpose. Such persons, before entering upon the discharge of their duties, shall take the oath prescribed for persons employed in the postal service, and shall serve without additional salary, pay, or compensation other than that attaching to their rank and position in the Army.

5. The Post-Office Department will arrange to separate incoming army mail by headquarters, by regiments, and, so far as possible, by companies, and deliver such mail, properly sacked or pouched, at such point as shall be most convenient for its transfer to the military detail, where, under the direction of the War Department, it shall be received by the Quartermaster's Department, and through that department delivered to the respective general and regimental headquarters.

6. The Quartermaster's Department shall also collect from the general and regimental headquarters outgoing mail, to be in turn delivered to the employees of the Post-Office Department at the point of departure.

7. The Post-Office Department will detail for each camp an expert money-order clerk, who will give requisite bonds and be fully supplied from time to time with

postage stamps, stamped envelopes, postal cards, and other supplies and blanks of whatever description. Applications for money orders within the regiments could be made out, and, with the money accompanying, could be grouped and sent by a properly authorized person to the money-order clerk at headquarters, who would issue regular money orders therefor and return them through the same channel.

8. For the more complete efficiency of this system, the Postmaster-General will, whenever necessary, designate a post-office inspector, or an officer or employee of the railway-mail service, to be associated with the postal superintendent in charge at any camp, to aid in the installation or operation of the military-mail service.

9. Whenever any military expedition shall be made, the Postmaster-General will detail a sufficient force of trained employees of the postal service to accompany it, and organize the same system of military-mail service at any camp that may be established.

Under the system thus outlined the Post-Office Department would keep the supervision and management of the mails; the Quartermaster's Department would undertake their transportation within the camp to and from the point of departure and arrival, and the adjutants would be responsible for the regimental and company collection and distribution.

If this plan meets your approval, I beg to ask that you will issue the necessary orders for its full and effective operation so far as it depends on the War Department and the military organization.

Very respectfully,

CHAS. EMORY SMITH, *Postmaster-General*.

The SECRETARY OF WAR.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 93. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 12, 1898.

The following instructions, governing the equipment of volunteer troops called into service under the President's proclamation of April 23, 1898, in addition to those contained in General Orders, No. 33, Headquarters of the Army, Adjutant-General's Office, May 5, 1898, are published for the information and government of all concerned:

As soon as practicable after the receipt of this order, provided it has not already been done, the commanding officer of each volunteer regiment, battalion, or other separate organization, shall convene a board of officers of his command to make inventories of all property received from the governor of the State or Territory to which his command was credited, and to make report as follows, viz:

1. To prepare an itemized list of all the United States property received from the governor, determine its condition and value, and fix the price (average) at which each article of clothing should be charged to enlisted men.

2. To make itemized lists of all articles of State property received from the governor for use of the organization, and to determine and report its money value at the time the property was received from the State, including clothing issued to enlisted men.

Quartermaster's property and ordnance property should be borne on separate inventories, and the reports of the several boards, after approval by the respective commanding officers, be forwarded direct to the chief of the bureaus to which the property pertains.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 94. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 12, 1898.

I. The following act of Congress is published for the information and guidance of all concerned:

AN ACT directing the enlistment of cooks in the Regular and Volunteer armies of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War be, and he is hereby, authorized and directed to cause to be enlisted in each company, battery, and troop in the Regular

and Volunteer armies of the United States, as a part of the authorized enlisted strength thereof, under rules to be prescribed by him, a competent person as cook, who shall take rank as and be allowed the pay of a corporal of the arm of the service to which he belongs, and whose duties in connection with the preparation and serving of the food of the enlisted men of the company, battery, or troop, and with the supervision and instruction of enlisted men hereby authorized to be detailed to assist him, shall be prescribed in the regulations for the government of the Army.

Approved, July 7, 1898.

II. The following instructions are published to govern the enlistment of army cooks, under the provisions of the act of Congress approved July 7, 1898:

1. A candidate for enlistment as cook will be first subjected to the required medical examination, and when found qualified for enlistment, both as regards his physical condition and his general character, the recruiting officer will examine him thoroughly as to his knowledge of methods and his skill in caring for, preparing, and serving food, particularly as to the amount of experience he has had in cooking for large bodies of men. The candidate will then be required to give a practical exhibition of his ability to cook, and for this purpose articles of the ration, in suitable amounts, will be issued to the recruiting officer by the nearest commissary upon requisitions signed by the recruiting officer. No candidate will be enlisted as a cook unless the recruiting officer be fully satisfied that he is competent to perform the duties required of him; and in the case of every person thus enlisted his enlistment paper will be plainly indorsed, "Enlisted as a cook." Men thus enlisted will be accounted for as cooks in the tables on the second and third folds of the trimonthly reports of the recruiting service.

2. The commanding officer of a regiment or other organization, in either the Regular or the Volunteer Army, is authorized to cause the enlistment of one competent cook for each company, troop, or battery of his command. Such enlistments will be made, whenever practicable, by the recruiting (or mustering) officer authorized by existing orders and instructions to recruit for the command. Men thus enlisted will be included in the authorized maximum enlisted strength of their companies, troops, or batteries.

3. General-service recruiting officers of the Regular Army, in addition to making enlistments of cooks for their own regiments upon the request of the commanding officers thereof, will, whenever practicable, enlist as cooks, for general assignment, men possessing the requisite qualifications and report them to the Adjutant-General of the Army for assignment to companies, troops, or batteries needing their services.

4. Mustering officers who are authorized to make enlistments *in the field* for volunteer organizations already mustered into the service of the United States (Section II, Circular Letter, Adjutant-General's Office, June 3, 1898), may make enlistments of competent cooks to fill actual vacancies in such organizations, with the approval of the department, corps, division, or district commander; and they will be guided in making such enlistments by the instructions prescribed in this order to govern recruiting officers.

5. The commanding general of a department or corps may, when found necessary, authorize officers detailed from his command to recruit for one volunteer organization serving therein, to make enlistments of cooks to fill actual vacancies in other volunteer organizations of his command. Department and corps commanders may, at the request of commanding officers concerned, transfer cooks from one organization to another within their respective commands, for the purpose of preventing a surplus in one organization and of filling vacancies in another.

6. An enlisted man already in service and desiring to serve as a cook may be appointed and rated as such upon his own application, if in the opinion of his immediate commanding officer, as the result of a practical test, he is sufficiently proficient. Such appointments will be made in the same manner as those of company noncommissioned officers.

7. Only *one* cook is authorized by law for each company, troop or battery, and every care must be exercised by commanding officers, through communication with their recruiting officers and with department or corps headquarters, to prevent exceeding this allowance. Should there be an excess of cooks, from any cause, in an organization the fact will be at once reported to the department or corps commander, with a view to the transfer of the surplus cooks to other organizations in which there may be vacancies therefor.

8. Cooks will be duly accounted for *as such* on all muster rolls and returns. The number required by an organization beyond the power of its own officers to supply will be reported to the proper department or corps commander, who will report such vacancies as can not be filled under his orders to the Adjutant-General of the Army.

9. The commanding officer of each company, troop, or battery will supervise the cooking and messing of his men; will see that at least two copies of the Manual for

Army Cooks are provided for his command, and that suitable men in sufficient numbers are regularly detailed as assistants to the cook and are fully instructed by the latter in managing, cooking, and serving the ration in the field; also that necessary utensils in serviceable condition are always on hand, together with the field-mess furniture for each man.

10. Each cook will be required to attend such drills and exercises as will qualify him for the performance of the duty of a soldier under arms when necessity requires.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 100.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 16, 1898.

The following is published to the Army for the information and guidance of all concerned:

Information having reached the War Department that notwithstanding the medical examination prior to muster in, men have been enlisted in the Volunteer Army who should have been rejected at that examination as unfit for military service, the attention of chief surgeons is directed to this subject as one of great importance. Systematic inquiry with a view to eliminating such men should be made in the various regiments and other commands by the medical officers on duty with them. A board of medical officers should be appointed in each division to carefully examine and make recommendation in each of the cases submitted by individual or regimental medical officers. In every case where discharge from service is recommended it should be seen that the certificates of disability embody a statement to the effect that the cause of the disqualification for the military service existed prior to the enlistment of the man, if such is found to be the fact. Department and corps commanders are authorized to order discharges on certificates of disability, such orders to be carried out by the regimental, independent battalion, battery, or detachment commanders, as the case may be. Such provisions of paragraph 140 of the Regulations as are inconsistent with the foregoing are suspended during the war.

In the examination of certificates of disability for discharge, it is enjoined upon the chief surgeons and others accountable to observe that there is no conflict between the reports of company commanders, medical and other officers thereon as to whether disability was incurred in line of duty or not in line of duty. If any discrepancies exist in this particular, every possible means will be employed to harmonize the reports before finally forwarding the papers to the Adjutant-General of the Army.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 110.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 1, 1898.

In order to introduce uniformity into the work of rationing the enlisted men now organized into brigades, divisions, and corps, the following instructions are promulgated for the guidance of all persons concerned:

1. The chief commissary of an army corps, under the direction of the corps commander, will have general supervisory direction and control over the division and brigade commissaries of the corps. The division commissaries will have supervision over the brigade commissaries of their respective divisions.

2. Ration returns (Form No. 53, Subsistence Department) will be submitted by commanding officers of companies, troops, batteries, and other organizations with the morning report on the 10th, 20th, and last day of each month, when practicable; that of the 20th to include the remaining days of the calendar month, the others ten days each. In making up such returns due attention must be given by commanding officers to the duty of adding or deducting rations on account of men joining or leaving since the date when rations were last drawn for the command.

3. Ration returns of the company commanders and others of a regiment will, after each has been approved by the regimental commander, be consolidated by the regimental adjutant upon a regimental ration return (Form No. 66, herewith), which, after approval by the regimental commander, will be forwarded with the ration

returns on which founded to the brigade commissary of the command, who will consolidate the regimental ration returns of each brigade on a separate brigade ration return (Form No. 67, herewith). When approved by the brigade commander, the brigade ration returns only will be forwarded for the information and supervision of the chief commissary of the army corps, who will refer them to the depot commissary for invoice and transfer of the rations in bulk to the respective brigade commissaries (Form No. 68, herewith). In order to prevent accumulation of surplus ration articles in the hands of brigade commissaries arising from savings and other causes, the final ration return of the brigade each month (or any brigade ration return, if occasion requires), will give a list of such articles on hand as should be deducted by the depot commissary from the quantities called for by the brigade ration return.

4. Should a brigade be separated from the division of which it is a part, the brigade ration return, approved by the brigade commander, will be forwarded direct by the brigade commissary to the depot commissary for issue. Should a division be separated from its corps, the brigade ration returns, after approval by the brigade commanders, will be referred by the division commissary to the depot commissary for invoice and transfer of the rations in bulk to the brigade commissaries (Form No. 68).

5. Brigade commissaries, on receipt of the stores furnished from depot on the brigade ration returns, will issue rations, in accordance with the ration returns of the separate organizations forwarded by the regimental adjutants and retained in their possession, with such frequency as to the respective organizations as the brigade commander may direct.

6. Separate regiments, companies, detachments, hospitals, and other organizations not brigaded will draw their rations from the depot commissary on proper ration returns.

7. The ration for issue to troops of the Cuban army and to Cuban destitutes will consist of the following articles:

8 ounces bacon.	} to 100 rations.
12 ounces flour, or 16 ounces corn meal.	
6 pounds coffee (green),	
10 pounds sugar,	
2 quarts vinegar,	
4 pounds salt,	
4 ounces pepper,	
4 pounds soap.	

8. Separate abstracts of issues (Form No. 40, Subsistence Department) will be made of issues to troops of the Cuban army, to Cuban destitutes, and to prisoners of war.

9. Compliance with the requirements of printed notes 6 and 8 on the abstract of issues (Form No. 40, Subsistence Department) and with the following requirements of Army Regulations is hereby suspended during the period of the existing war:

(a) The requirement of that part of Army Regulations 1262 directing the indorsement upon travel orders of enlisted men the time to which they were last rationed and directing the turning over of the orders so indorsed to the commissary from whom rations are next drawn for file with his abstract of issues or receipt roll of commutation paid.

(b) The requirement of that part of Army Regulations 1262 directing that a ration certificate of troops detached (Form No. 41) shall be furnished to detachments of enlisted men and civil employees leaving a post or command and the filing of such certificate with his abstract of issues by the commissary from whom rations are next drawn.

(c) The requirement of that part of Army Regulations 1275 directing that the retained copy of the travel orders of enlisted men paid commutation in advance shall be indorsed and delivered to the commissary from whom rations are next drawn for file with his abstract of issues.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

*Invoice of } subsistence stores for the use of tra...
 Receipt for }*

<p>ISSUED ON BRIGADE RATION RETURN DATED ———, 189—.</p>	<p>Number of per- sons to be sup- plied.</p>	<p>Number of days.</p>	<p>Numl of cor- plet- ration</p>
Complete rations (all additions and deductions made).....			
Other subsistence stores			
Total number of rations, etc.....			
<p>Reduced to bulk.....</p>			
<p>Invoice price (cents per unit of quantity)</p>			

I certify that the above invoice is correct.

(Signed in ——)

DEDUCTIONS TO BE MADE IN ISSUING ON WITHIN RATION RETURN.

The following articles have accumulated, from savings and other causes, in the hands of the brigade commissary, and should be deducted by the depot commissary from the issues to be made on the within brigade ration return:

Articles. [Enter the number and sizes of cans of canned articles issued.]	Quantities.
Pork.....	lbs.
Bacon.....	lbs.
Fresh beef, canned.....	
Corned beef, canned.....	
Fish.....	lbs.
Flour.....	lbs.
Hard bread.....	lbs.
Corn meal.....	lbs.
Beans.....	lbs.
Baked beans, canned.....	
Peanut.....	lbs.
Rice.....	lbs.
Hammy.....	lbs.
Potatoes.....	
Onions.....	
.....	
Coffee.....	lbs.
Tea.....	lbs.
Sugar.....	lbs.
Vinegar.....	galls.
Salt.....	lbs.
Pepper.....	lbs.
Soap.....	lbs.
Candles.....	lbs.

_____,
Brigade Commissary.

GENERAL ORDERS, }
No. 114. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 9, 1898.

I. Sick and wounded soldiers sent to United States general or field hospitals will when able to travel be granted by the surgeons in charge one month's furlough and transportation to their homes. There will be noted on the furlough: By the surgeon, the post or camp nearest to the home of the soldier; by the quartermaster, the issue of transportation; by the commissary, the days for which commutation of rations while traveling is paid. Weekly reports will be made by the surgeons to the Adjutant-General of the Army of furloughs so granted, giving names, rank, regiments, and places to which transportation has been issued; also post-office address.

Soldiers granted furloughs in accordance with the foregoing will be instructed by the surgeons that on the expiration of their furloughs, if fit for duty, they must report at the nearest Army post, camp, or hospital for the purpose of being either sent to their regiments, or as provided for in Paragraph II.

Those not fit for duty will be required to forward their furloughs, five days before expiration, to the Adjutant-General of the Army, accompanied by the certificate of a reputable physician showing clearly their physical condition and the probable time required for their recovery.

The Quartermaster's Department will furnish the necessary transportation to the homes of the furloughed soldiers and the Subsistence Department commutation of rations at the rate of \$1.50 per day for the necessary number of days' travel. Sleeping-car accommodations when the travel is by rail and staterooms when the travel is by boat (other than Government transport) will be furnished under Army Regulation 1103.

Neither the cost of transportation nor commutation of rations while traveling will be charged against the soldier. This order will not apply to soldiers on ordinary furloughs.

II. The following instructions to provide for the disposition of enlisted men, patients in the United States general or field hospitals, *who have made complete recovery and are able to do full duty*, are published for the information and guidance of all concerned:

Soldiers, both regulars and volunteers, whose regiments are in the United States, will be sent by the surgeons in charge of hospitals to join their proper regiments.

Soldiers belonging to regiments of the Regular Army which are not in the United States will be sent by the surgeons in charge of hospitals to report for duty with recruit detachments of their respective regiments, except artillery soldiers of the Regular Army belonging to batteries which have left the United States, who will be sent to the headquarters of their respective regiments.

Those belonging to volunteer organizations which are not in the United States will be sent by the surgeons in charge of hospitals to the nearest military post or camp.

The names of all men sent from general or field hospitals under these instructions, their companies and regiments, and the places to which they are ordered, will be promptly reported to this office by the surgeons in charge of hospitals, who will be furnished by this office with weekly printed statements of the stations of United States troops, regulars and volunteers, which statements will also show the location of the detachments of recruits belonging to regiments of the Regular Army that are not in the United States.

The necessary transportation under this order will be furnished by the Quartermaster's Department, and the Subsistence Department will pay commutation of rations at the rate of \$1.50 per day for the necessary number of days' travel. These provisions will not apply to soldiers on ordinary furloughs.

III. If the soldier has been paid or drawn clothing while in a hospital it will be noted on his descriptive list, if he has one, and if not, his company commander, or the officer to whom he may be ordered to report, will be furnished this information by letter.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 116. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 10, 1898.

The following is published to the Army for the information and guidance of all concerned:

Medical officers in charge of general hospitals, hospital trains, hospital transports, and the hospital at the camp at Pablo Beach, Fla., and at the hospital at the camp at Montauk Point, N. Y., will be allowed to expend from the appropriation "Subsistence of the Army," for the diet of the enlisted men undergoing medical treatment under their charge, at the rate of not exceeding 60 cents per man per day for the period each is undergoing treatment. The allowance so made will constitute a special fund in the hands of the medical officer in charge, from which will be purchased the entire diet of the enlisted men while undergoing medical treatment. These purchases will be restricted to articles of food, solid and liquid, the quantities and varieties of which will be determined by the medical officer in charge.

Chief commissaries of departments will transfer to medical officers in charge such subsistence funds as may be estimated for by the latter for carrying out the objects of this order.

There will be rendered monthly to the Commissary-General of Subsistence, by the medical officers concerned, regular accounts current supported by vouchers showing the application of these funds, and regular returns of subsistence stores accounting for the articles of food purchased and issued. There will be submitted with each monthly return a tabular statement showing the number of patients present during the month, as shown by the hospital records, and the money value of the articles issued to and consumed by them. The statement will be so arranged as to show the actual cost of subsistence per man per day for the month.

Transfers of subsistence funds from one hospital, train, or transport to another without authority of the Commissary-General of Subsistence, and the purchase from subsistence funds of articles other than food intended for diet of the sick, are prohibited.

This order will go into effect at once, and all surplus funds in the hands of medical officers in charge, arising from the commutation of rations heretofore allowed to

enlisted men undergoing treatment under their charge, will be taken up on their accounts current for the month of August, and all articles purchased from such commutation remaining on hand unconsumed on receipt hereof will be taken up on their returns of subsistence stores for that month.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 117. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 10, 1898.

In order to prevent as far as possible the diseases incident to encampments of large bodies of men, namely, typhoid and malarial fevers, diarrhea, and dysentery, and the further spread thereof where these diseases have already gained more or less headway, all officers, from the commanding general to company commanders, will exercise the utmost vigilance to enforce proper sanitary conditions in camp and strict cleanliness of the person.

The speedy destruction or removal with safety of all decaying substances, present and future, and the rendering innocuous the feculent matter of the camp must be accomplished.

The Quartermaster's Department will furnish lumber for floors to all tents. The general commanding camp will at once provide ample hospital facilities by erecting barracks where there is a shortage of hospital tents.

No effort will be spared to carry this order into effect to the fullest extent, and to this end those concerned will not rest content with the issuance of orders upon the subject, but they or their representatives, duly impressed with this grave responsibility, will immediately see to the commencement, continuance, superintendence, and practical accomplishment, day by day, of the instructions imposed upon the command.

The attention of all concerned is called to Army Regulations concerning interior economy, police, and discipline of companies, to Circular No. 1, Surgeon-General's Office, April 25, 1898, to "Marches" and "Camping" in the authorized Drill Regulations, to "Soldier's Handbook," and the remarks therein compiled. From these easily accessible data, supplemented by his own practical experience and that of others, the commanding general of each camp will at once prepare and put into immediate execution a simple code of rules, of the daily practical accomplishment of which he will assure himself, rendering daily reports to the Adjutant-General of the Army.

Copies of the rules promulgated will be sent at the earliest moment to the Adjutant-General of the Army.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

CIRCULAR, }

No. 31. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 12, 1898.

Owing to the number of incorrect and incomplete final statements daily presented to paymasters for settlement, it is apparent that the obligations of officers issuing such statements are not fully understood, and the result is great inconvenience to discharged soldiers who are obliged to return to their late commanding officers to have necessary corrections made and liability of paymasters to overpay when the account of the soldier is not fully and properly stated.

In order that there may be uniformity in the issue of final statements, the following instructions, compiled from the Army Regulations, will be strictly observed.

"It should be borne in mind that overpayments caused by erroneous final statements will be charged against the officer who signed the final statements."

NOTIFICATION OF DISCHARGE.

(Par. 150, A. R.)

The officer who prepares the final statement of a soldier will, at least one day before the discharge takes effect, send by mail to the paymaster to whom the soldier may wish to apply for payment a notification in his own handwriting, in form as follows:

"Major ———, Paymaster, U. S. Army,
"Washington.

"SIR: I have the honor to advise you that Private ——— will be discharged the service of the United States on ———, 1898, by reason of ———." (Here state the reason.)

"The soldier was last paid to —, 1898, and has pay due him from that date to date of discharge.

There is due him for clothing not drawn in kind, \$ —, or "He is indebted to the United States for clothing overdrawn, \$—. He is indebted to the United States for C. & G. E., \$—. For court-martial forfeiture, \$—.

"The soldier is (or is not, as the case may be) entitled to traveling allowances.

"His signature appears below.

"(Soldier's signature:) _____.

"Very respectfully,

"Com'g Co. _____ Reg't. _____ Vols."

SOLDIERS ARE DISCHARGED FOR THE FOLLOWING REASONS.

(Par. 140, A. R. and G. O., No. 100, A. G. O., 1898.)

1. By order of the President or the Secretary of War.
 2. By sentence of a general court-martial.
 3. On surgeon's certificate of disability by direction of the commander of a territorial department or army in the field. Department and corps commanders are authorized to order discharge on certificates of disability, such orders to be carried out by the regimental, independent battalion, battery, or detachment commander, as the case may be, and the final statements should show the authority for discharge and whether or not the disability was caused by the soldier's own misconduct. The requirements of G. O., No. 100, A. G. O., 1898, should be carefully observed.
 4. In compliance with an order of one of the United States courts, or a justice or judge thereof, or on a writ of habeas corpus.
 5. By expiration of term of service.
- Under the head of "Remarks" the notation, "Service honest and faithful," or "Service not honest and faithful," as the case may be, must appear.

TRAVEL PAY IS FORFEITED.

1. By dishonorable discharge, per sentence of court-martial.
 2. When soldier is discharged as a minor, or for other cause involving fraud on his part in the enlistment.
 3. When, at date of discharge, the soldier is in the hands of civil authorities and undergoing imprisonment.
 4. When discharged before expiration of term of enlistment through fault of his.
 5. When discharged by order of the Secretary of War, or by corps or department commander, for disability caused by his own misconduct.
 6. When discharged by way of favor, as, "to enable him to accept a commission."
- If for any of the above causes the soldier is not entitled to traveling allowances, the notation, "not entitled to traveling allowances," must appear, and the authority for the same must be stated.

CLOTHING ACCOUNT.

Settlement must be made by the company commander, and the balance "due the United States," or "due the soldier," must be stated.

In cases where clothing has been issued by the State authorities the following remark will be made on the final statements: "In the settlement for clothing is included the sum of \$—, the total value of articles issued him by the State." In cases where no clothing was issued by the State a remark to that effect will be made.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 121. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 18, 1898.

I. In addition to the instructions published in General Orders, No. 144, August 9, 1898, from this office, regarding furloughs to sick and wounded soldiers, division commanders, when separated from the corps to which they belong, are authorized to grant furloughs to enlisted men, upon the recommendation of the division surgeon, and to order transportation to their homes of the men so furloughed.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }
No. 124. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 20, 1898.

I. The following instructions for the muster out of the service of United States Volunteers are published for the information and guidance of all concerned:

1. Only officers of the Regular Army will be detailed by the War Department to muster out troops, and in all matters pertaining to their duties as mustering officers the officers and men of organizations to be mustered out will be guided by the instructions of these officers, given in pursuance of authority conferred by the Secretary of War.

2. The mustering officer, proceeding according to a well-considered plan, suited to the situation, will make full use, under the supervision of the company or other commander, of the men of each company or other organization possessing clerical ability, so that the transfer of property, preparation of physical-record blanks, correction and completion of organization records, preparation and comparison of property returns, statements of charges, and muster-out rolls may be accomplished with the least possible delay, each individual engaged in the work of comparison being required to initial the paper compared, in order that the responsibility for errors in comparison may be fixed.

3. To avoid expense to the Government and hardships and annoyances to individuals concerned, by unavoidable delays that will occur in the final payment of officers and enlisted men absent from their commands on muster out, commanding officers will make every effort to effect the return of all absentees and detachments prior to muster out of the organization, and if for any reason an officer or an enlisted man absent is unable to join his command, a full report of the facts will be made to the Adjutant-General of the Army for further orders.

4. The mustering officer, from the daily reports of his staff assistants, and his own notes, will telegraph to the Adjutant-General of the Army, in brief, daily progress in the preparation of returns, vouchers, muster-out rolls, transfer and disposition of property, physical examination of troops, muster out, payment, and departure from the camp or station, with designation of the organization, and statement of the number of officers and men separately.

5. Officers who at any time were responsible for public property of any description must obtain certificates of nonindebtedness before their final payment can be made. Commanding officers will therefor forward at once to the Paymaster-General a complete list of all the officers of the organization to be mustered out, and to the Quartermaster-General, Commissary-General of Subsistence, Surgeon-General, Chief of Engineers, Chief of Ordnance, and Chief Signal Officer, a list of those officers who are, or at any time have been, responsible for public property. Chiefs of the supply departments mentioned will cause immediate examination of returns to be made and transmit the result thereof to the Paymaster-General.

6. Officers who have not at any time been responsible for public property will be required to furnish the mustering officer with their affidavits to that effect, certified to by the commanding officer of the regiment, independent battalion, or company. The affidavits of such officers will be transmitted with the muster-out rolls to the paymaster designated to make the payment to the organization.

7. All officers will be held to a strict accountability for the discipline of their commands and the preservation of public property. Mustering officers are empowered to prefer charges against officers who neglect in any manner to take the proper measures to insure the Government against loss of property or to keep their commands together and under proper discipline.

8. Officers of the staff departments of the Regular Army will be detailed, when practicable, to receive public property, supervise the preparation of all returns and papers relating thereto, and for the performance of this duty will receive special instructions from the chiefs of the supply departments of the Army.

9. The supply departments of the Army will continue to furnish organizations with needful supplies until date of final payment and discharge.

10. The mustering officers, upon arrival at the camp or station of the organization to be mustered out, will make a careful examination of the regimental and company records and cause any omissions found to be supplied in order to complete the records.

11. Five muster-out rolls will be prepared under the supervision of the mustering officer, by the proper commanding officers, with the greatest care to avoid any injustice being done to the Government or to persons who at any time were members of the organization, special attention being given to the requirements of the last paragraph of Circular No. 31, current series, from this office, being careful to note that settlement of clothing may involve different fiscal years, and all concerned in their preparation will initial the same and carefully read the "Instructions for the preparation of muster-out rolls," printed on the back of the rolls.

12. All persons borne on the muster-in and on all other muster rolls, and all who have joined or belonged to the organization at any time since its muster in, must be

accounted for on the muster-out roll, which is required to be a complete record of all the officers and men who ever belonged to the organization.

13. After the muster-out rolls have been prepared they will be carefully examined by a board of officers, to be appointed by the commanding officer, which will be furnished with the retained copy of the muster-in roll, with copies of all the muster rolls of the organization and other necessary data. Under the supervision of the mustering officer the board will compare rolls and data with the muster-out rolls, to insure their absolute correctness in all respects.

14. Discharge certificates will be prepared for every officer and man present and absent, except absent officers and men held in service by proper authority and deserters. These will be signed by the commanding officer for the field, staff, and band, by company commanders for their companies, and all will be countersigned by the mustering officer at place of departure, who will forward them by registered mail to the mustering officer at the State rendezvous for delivery to the paymaster, who will stamp and sign them as required by paragraph 1383, Army Regulations. The certificates will then be delivered to the regimental and company commanders.

15. The discharge from the United States Volunteer service in the case of all absentees (except special cases otherwise provided for or such as may be held in service by proper authority) will take effect on the date of muster out of the organization.

16. In all cases of absentees, where the officer at the time of executing the certificates of discharge is not aware of the date of muster out of the organization, he will set forth in writing thereon that the same take effect as of the date of the muster out of the United States service of the company or other immediate organization upon the muster roll of which the individual's name appears.

17. In the case of enlisted men absent, who on account of sickness are unable to join their commands, the discharge certificates, with carefully prepared descriptive lists of account of pay and clothing, giving the address of the soldier, will be given to the mustering officer for transmission with the muster-out rolls to the Adjutant-General of the Army, and the soldier will be officially notified to apply by letter to the Paymaster-General of the Army for final payment. In cases of soldiers absent on detached service who are held in service by proper authority, descriptive lists, if not already furnished, will be sent to the officers under whom they are serving, and when such men are ordered to be mustered out (on detachment muster-out rolls) the proper officers will prepare and sign the discharge certificates after the medical examination has been had, as provided for in Paragraph II of this order.

18. Officers absent from any cause will be furnished discharge certificates (unless specially held to service) and will be notified to apply to the Paymaster-General for certificates of nonindebtedness and settlement of their accounts.

19. In the cases of enlisted men absent sick and of officers absent on muster out of organizations, the required examination will be made under special instructions to be issued by the Adjutant-General of the Army.

20. As a rule, the muster out of organizations and their final payment will take place at the State or regimental rendezvous, except when otherwise ordered by the War Department. The preparation and completion of the muster-out rolls, returns, and papers, and the inspection and transfer of public property to the officers of the supply departments of the Army, except as hereinafter provided, will take place before the organization is ordered to its State. The only property that will be allowed to be retained until muster out, unless otherwise ordered by the mustering officer, is the rifles, cartridge belts, cups, canteens, meat cans, knives, forks, and spoons, necessary medical supplies and tent equipage, the colors, and the regimental and company records.

21. The supply departments concerned will arrange through the chief commissary and chief quartermaster of the department within which the State rendezvous is located for meals, camp ground, shelter, transportation, and quartermasters' supplies for the time of the encampment of the organization at the State or regimental rendezvous.

22. As soon as the muster-out rolls have been fully and satisfactorily completed, the mustering officer at the place of departure will fill in the date of the muster out as of a date ten days later (the probable time necessarily required to transfer the organization to its State rendezvous, the making of the physical examination of officers and men, etc.), and forward at once by registered mail two copies to the paymaster designated to make the final payment, and the remaining three copies of the rolls to the mustering officer at the State rendezvous.

23. The duties with which mustering officers and officers of the supply departments of the Army are charged by this order will be so systematically performed that the organization can proceed to its State rendezvous without delay (for which timely transportation and subsistence will be provided) freed from all property accountability, except that mentioned in paragraph 20; with all rolls, returns, and papers

completed to date in order to avoid unnecessary delay when it reaches its home station in carrying out the following instructions:

II. As soon after the arrival of the organization at its State rendezvous as possible the physical examination of all officers and men will be made, before muster out and payment.

PHYSICAL EXAMINATION OF OFFICERS AND MEN.

1. To facilitate the settlement of pension claims that may be made on account of disability incurred in the United States service and to protect the rights of persons who may be entitled to the benefits of the pension laws, as well as to guard the interests of the Government, it is ordered that a thorough physical examination be made of all officers and enlisted men of volunteers, except general officers and officers of the general staff, immediately prior to their muster out of service or discharge. For this purpose a blank form will be supplied by the Adjutant-General of the Army.

2. When an organization is about to be mustered out of the service, each officer and enlisted man will be required by his company or other commanding officer to answer the questions on the blank form "Declaration of person to be mustered out," which, when completed, will be signed by him and duly witnessed by said officer. This officer will then make the required certificate which follows the declaration, based upon the official records of the organization and on his personal knowledge of the facts in the case.

3. When the physical examination papers of the officers and men of a company or other organization are so far completed, they will be given to the mustering officer, who will cause the physical examination to be made and said papers to be completed by a medical officer of the Regular Army, whenever the services of such an officer are available, and when not, then by a medical officer of volunteers *not belonging to the organization of which the officers and men are members*.

4. The mustering officer will report to the Adjutant-General of the Army any person under examination who claims to have a disability of which the medical officer can find no evidence, or claims to have a disability incurred in line of duty, whereas the medical officer is of the opinion that the disability was not so incurred, such person will not be discharged until after he shall have been examined by a board of three medical officers, to be convened by the Adjutant-General of the Army, which will make a full report of the case in accordance with the terms of this order. If the medical officers fail to agree with regard to the case, a separate minority report will be made by the dissenting officer.

5. Upon completion of the medical examination, the papers in the case will be turned over to the mustering officer, who will forward them with the muster-out rolls to the Adjutant-General of the Army.

6. The physical examination having been completed, the regimental and company records and blanks and the colors will be packed and marked, showing the organization to which they pertain, and forwarded to the Adjutant-General of the Army the day before the muster out and payment takes place. On the same day, or earlier, as may be deemed advisable by the mustering officer, the ordnance and other public property in possession of the organization will be turned over to the proper officers of the supply departments, to be disposed of in accordance with the special instructions received by them, and all returns finally completed and rendered, and all supplementary charges entered on the muster-out rolls.

III. On arrival of the paymaster at the State rendezvous, the mustering officer will deliver to him the discharge certificates for the purpose indicated in section 14 of this order, and on the day of payment the organization will be paraded and the mustering officer will cause the names of all officers and enlisted men present and absent to be called out, requiring those present to answer and step briskly five paces in front of the line. As soon as the muster of a company has been completed, the mustering officer will direct it to be marched to the pay table for payment and discharge, handing a copy of the muster-out roll to the company commander. On completion of the payment of the organization, the mustering officer will send one copy of the muster-out roll to the adjutant-general of the State and the remaining copy to the Adjutant-General of the Army.

Mustering officers will make daily notes of the progress of the work accomplished and require staff assistants to do likewise, keeping careful and convenient records of all correspondence, properly indexed, and upon completion of the duty cause said staff assistants to render, through him, for transmittal with his own to the Adjutant-General of the Army, full reports of the work accomplished, with recommendations as to the solution of the problem involved in the muster out of service of troops of the United States Volunteer Army.

IV. Upon an honorable muster out and discharge from the service of the United States, all volunteer soldiers, desiring to do so, are hereby authorized to retain their

arms and accouterments upon the value thereof being charged to them on the muster-out rolls at the following rates:

Springfield breech-loading rifle or carbine, caliber .45.....	\$10.00
Colt's revolver, caliber .38.....	10.00
Colt's revolver, caliber .45.....	10.00
Saber.....	3.60
Blanket bags with straps complete.....	1.15
Bayonet scabbard for rifle.....	.50
Cartridge belt (single row of loops).....	.75
Cartridge belt (double row of loops).....	1.00
Canteen with strap.....	.43
Gun sling.....	.24
Haversack and strap.....	.72
Waist belt and plate.....	.30
Meat can.....	.14
Tin cup.....	.08
Knife.....	.04
Fork.....	.03
Spoon.....	.01
Revolver holster.....	.50
Cartridge box.....	.50

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 126. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 25, 1898.

I. Commanders of independent brigades and other small independent commands are authorized to grant leaves of absence and furloughs to not more than 5 per cent of their force, under the provisions of paragraphs 44 and 106 of the Regulations.

II. The demand for Hospital Corps privates for the care of the sick in various commands being greater than can be supplied by transfer and enlistment, corps commanders and commanders of camps not under the jurisdiction of corps commanders are authorized and directed to detail a sufficient number of enlisted men to meet the emergency, the number of men and the length of detail to be determined by the chief surgeon.

III. The following instructions are published for the information and guidance of all concerned:

All officers and enlisted men absent from their organizations on leave, furlough, or from any other cause will at once report by letter to their respective company or regimental commanders the date, cause, period, and authority of absence. In case the whereabouts of the company or regiment is not known to the absentee, the report can be forwarded under cover to the Adjutant-General of the Army.

Surgeons in charge of hospitals and all post commanders will, at the end of each month, send to the proper company or regimental commander the name of each officer and enlisted man in the hospital or at the post other than those belonging thereto, giving the cause of detention, date of arrival, departure, return to duty, or death, or any other information that may be pertinent to the case.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 130. }

WAR DEPARTMENT,
ADJUTANT GENERAL'S OFFICE,
Washington, August 29, 1898.

The following additional instructions amendatory of those contained in General Orders, No. 124, August 20, 1898, from this office, are published for the information and guidance of all concerned:

1. Except the officers and men required by paragraph 5 for the necessary guard details, etc., leaves of absence for sixty days and furloughs for the same period will be granted all officers and enlisted men of organizations which have served beyond the limits of the United States, and thirty days to officers and men of organizations which have not served beyond the limits of the United States when such organizations are ordered to be mustered out of service.

2. Such leaves of absence and furloughs will be granted by the commanding officers after organizations have arrived at State rendezvous, all to take effect on

one date for thirty days or sixty days, as the case may be, and all officers and men must without fail report at the rendezvous on the *thirtieth* or *sixtieth day thereafter*. Any officer or man failing to so report will be considered and reported as a deserter unless prevented from doing so by sickness, which must be satisfactorily explained by the certificate of a reputable physician and the fact noted on the rolls.

3. Before organizations are granted furloughs the preparation for muster out, as required by General Orders, No. 124, August 20, 1898, from this office, will, in view of the foregoing, be carried out only so far as relates to the inspection and correction of records; inspection and transfer of such public property as may no longer be required; the preparation and comparison of property returns; the steps necessary to secure certificates of nonindebtedness, and for the return of all absentees, etc.

4. When possible all returns and papers relating to the muster out of organizations will be prepared during the period of furlough.

5. Each commanding officer, prior to the departure of his officers and men, will make arrangements necessary to verify and protect all public property pertaining to his command during the period of absence and place the same under proper guard detailed from his command for the purpose. He will notify the Adjutant-General of the Army of his arrival at rendezvous, and at the earliest possible moment the date on which leaves and furloughs expire.

6. In preparing muster-out rolls the number of days while on furlough will be stated under the heading on the roll, "Subsistence, number of days," and the paymaster in the "Pay account" on the roll will change the heading "For horses and equipments" to "Commutation for furlough rations," and credit each man at the rate of 25 cents per day for the number of days due and pay the same. The amount so paid for commutation of rations by the Pay Department will be refunded from the appropriation made for the Subsistence Department.

7. Mustering officers are empowered to administer oaths in all matters pertaining to the muster out of volunteers.

8. As soon as practicable the usual monthly pay rolls will be made out for the month preceding departure on furlough and sent to the chief paymaster of the military department in which the organization's rendezvous is situated. Upon these rolls alone can the officers and enlisted men be paid prior to departure on leave or furlough.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

CIRCULAR }
No. 34. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 29, 1898.

The following decision has been made and is published to the Army for the information of all concerned:

"*Transportation*.—Sick and wounded soldiers granted furloughs under the provisions of General Orders, No. 114, August 9, 1898, from this office, are entitled to transportation from their homes upon return to duty, whether application therefor be made by them in person or by letter."—(Order Sec. War, Aug. 27, 1898, 115661, A. G. O.)

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }
No. 134. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 2, 1898.

The following is published to the Army for the information and guidance of all concerned:

1. Furloughs granted to enlisted men under the provisions of General Orders, No. 130, War Department, Adjutant-General's Office, August 29, 1898, will not be given on the usual blank forms for furloughs, but will be given orally by commanding officers. If given in the regular form, however, before the receipt of this order, the fact will be noted on the muster-out roll, and paymasters will require their surrender before making final payment, and will enter the fact of payment upon them and file them with the pay roll on which payment is made.

2. It having been reported to the War Department that many convalescent soldiers who have received furloughs and started for their homes have been taken ill on the way, to avoid further occurrences of this kind it is suggested in the strongest possible terms that all soldiers traveling homeward on furloughs will exercise their best

judgment in caring for themselves, especially those who have been ill in hospitals with fevers. Their appetites are very keen, and, unless they deny themselves everything except the necessary food of the simplest character, are in great danger of a relapse. This instruction is sent out hoping that it may catch the eye of those men en route, and also for the instruction of surgeons at hospitals. It is ordered that no man shall receive a furlough whom the surgeon in charge believes to be unable to travel alone, and that no furloughed soldier shall leave hospital without receiving full instructions as to his diet while en route to his home from his surgeon.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 135.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 3, 1898.

I. The commanding officers of military departments, army corps, and detached commands will, as soon as practicable, forward to the Adjutant-General of the Army the names of such officers of the Army, regular and volunteer, as may be considered entitled to the brevet commissions "for distinguished conduct and public service in the presence of the enemy," under section 1209, Revised Statutes. These lists will be forwarded through the military channel, and will show in each case the name, rank, regiment, or corps of the officer, and the date and place of the action in which he is reported as having distinguished himself, and also a description of the specific act of gallantry.

II. The following rules will govern the award of medals of honor under the resolution of Congress approved July 12, 1862, and under the act approved March 3, 1863, for such officers and enlisted men of the Army, regular and volunteer, as may "have most distinguished themselves in action."

(a) Medals of honor will not be awarded to officers or enlisted men except for distinguished bravery or conspicuous gallantry which shall have been manifested in action by conduct that distinguishes a soldier above his comrades, and that involves risk of life or the performance of more than ordinarily hazardous duty. Recommendations for the award will be governed by this interpretation of extraordinary merit.

(b) Recommendations should be made only by the officer in command at the time of the "action," or by an officer having personal cognizance of the specific act for which the medal is granted. The recommendation must be accompanied by a detailed recital of the circumstances, and by certificates of officers, or affidavits of enlisted men who were eyewitnesses of the act. The testimony must, when practicable, embrace that of at least two eyewitnesses, and must describe specifically the act or acts by which the person in whose behalf the recommendation is made "most distinguished" himself, and the facts in the case must be further attested by the official reports of the action, record of events, muster rolls and returns, and descriptive lists.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 136.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 3, 1898.

The following is published to the Army for the information and guidance of all concerned:

The provisions of General Orders, No. 116, War Department, Adjutant-General's Office, August 10, 1898, are hereby extended to include all field and post hospitals.

In this connection it is to be understood that General Orders, No. 116, does not do away with the hospital fund, but applies to patients who, in the opinion of the surgeon, are too sick to use the ration. For patients that can use the ration and for the Hospital Corps savings can be made as heretofore. Nor does the order take away the privilege of using funds and supplies furnished by aid societies, the using of which is left to the discretion of the surgeon, as is also the question whether or not there should be separate tables, kitchens, etc., having in mind the fact that the subsistence fund is to be used for those patients who need special articles of diet. General Orders, No. 116, is further intended to place in the hands of the surgeon a fund from which necessary articles of diet for patients too sick to use the ration can be purchased, without waiting for the formation of a hospital fund, and at the same time to prevent a large hospital fund accruing from those too sick to use the ration.

To sum up, the allowance of subsistence funds is intended to furnish the surgeon with the necessary funds for the purchase of such articles of the diet as in his discretion he may find necessary. It is not intended for those well enough to use the ration, nor is it intended to furnish the Hospital Corps with delicacies and special articles of the ration which could not be purchased from their own savings.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 139.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 7, 1898.

I. The following is published to the Army for the information and guidance of all concerned:

It is ordered that a quartermaster be stationed at each general hospital for the purpose of giving transportation to soldiers who are sent home on sick furlough, and in every instance when the officer in charge of the hospital issues a furlough he should state on the furlough that under General Orders, No. 114, August 9, 1898, this office, the soldier so furloughed is entitled to transportation, and, if in the judgment of the surgeon the soldier should be furnished with sleeping-car accommodations, that fact will be stated, and when it so appears on the furlough the quartermaster must not only issue transportation but sleeping-car accommodations as well.

II. General Orders, No. 130, August 29, 1898, from this office, is so far amended as to place commissioned officers who belong to organizations furloughed for sixty days on waiting orders for the convenience of the Government for that period, instead of granting them leaves of absence.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 140.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 8, 1898.

The following is published to the Army for the information and guidance of all concerned:

II. All enlisted men who, between April 21, 1898, and such time as a treaty of peace is concluded between the United States and Spain, were assembled in camps or rendezvous in the United States, or into separate bodies, such as regiments, brigades, divisions, or corps, for the purpose of carrying on military operations and bringing to a conclusion the war with Spain, and all who embarked on transports for campaigns against the enemy in Cuba, Porto Rico, and the islands of the Pacific, or on the high seas, or elsewhere, are entitled to wear the "service-in-war" chevron prescribed in the Regulations and Decisions pertaining to the uniform of the Army of the United States, approved May 11, 1897.

The foregoing will not apply to enlisted men who were performing service in garrisons on the Western frontier which is requisite in time of peace, and in nowise considered a part of the Army assembled to carry on the war with Spain.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 141.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 12, 1898.

By direction of the Secretary of War, paragraph 162 of the Regulations is amended to read as follows:

162. The remains of deceased soldiers will be inclosed in coffins and transported by the Quartermaster's Department to the nearest military post or national cemetery, or, if so desired by their relatives, to their homes, for burial, unless the commanding officer deem burial at place of death to be proper, when a full report of the facts and reasons will be made to the Adjutant-General of the Army. The expense of transporting the remains is payable from the appropriation for Army transportation,

or from funds specially appropriated for that purpose. The cost of expense of burial other than the cost of transportation will be limited to \$35 for each enlisted man.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }

No. 142. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 14, 1898.

I. The Acting Secretary of War authorizes the sale of horse equipments to volunteer soldiers discharged from the service, who are desirous of purchasing the same because they have used them in service, at the following reduced prices:

Saddle.....	\$10.00
Bridle	2.00
Halter	1.00
Watering bridle.....	.75
Saddle blanket.....	2.50
Saddlebags	2.50
Surcingle .....	.50
Spurs and straps, per pair.....	.50

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

CIRCULAR }

No. 36. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 14, 1898.

By direction of the Assistant Secretary of War the following instructions to paymasters for the payment of troops mustered out of the service is published for the information and guidance of all concerned:

Paymasters engaged in paying mustered-out men will endeavor to make such payments as complete as possible, both with regard to settling all arrears of whatever nature due the soldier and paying every one appearing on the rolls as entitled to pay; at the same time exercising the greatest care to avoid overpayments, as such can not, in all probability, be recovered, and the loss will fall upon the paymaster.

They will keep the rolls open as long as possible so as to include all men not present at the general payment, but who appear afterwards, either in person or by attorney, before the rolls are finally closed.

CREDITS ON THE ROLLS.

Items of credit to the soldiers likely to appear on the rolls are—

Pay from date of last payment, to include the date of muster out.

Arrears of pay due from date of enrollment to date of muster into the service, in which case certificate should be required that the men have not been paid for the same time by the State.

Clothing.—Under this head balances only should be stated: "Due the United States," or "Due the soldier."

A statement that the soldier has drawn, since his enlistment, clothing to the value of—— dollars will not be accepted; that is to say, the statement of the balance due the United States or due the soldier must not be left for the paymaster to determine.

Travel allowances.—Officers will be entitled to one day's pay for every 20 miles of travel from place of muster out to place of enrollment. Enlisted men will be entitled to the same and to subsistence at the rate of 30 cents per day for every 20 miles traveled as above. Fractions of a day less than one-half (10 miles) will not be considered.

For a distance equal to half a day a full day's pay will be allowed.

CERTIFICATES OF NONINDEBTEDNESS.

Officers, before receiving final payment, must satisfy the paymaster that they are not indebted to the United States on any account whatever. Officers who have at any time been responsible for public property must obtain certificates of nonindebt-

edness from the Quartermaster-General, Commissary-General, Surgeon-General, Chief of Ordnance of the Army, and Chief Signal Officer, and from the chief of the division of bookkeeping and warrants, Secretary's Office, Treasury Department, and all officers must obtain such certificates from the Paymaster-General of the Army.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 145.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 16, 1898.

By direction of the Acting Secretary of War, the following is published to the Army for the information and guidance of all concerned:

The quartermaster stationed at a general hospital under paragraph 1, General Orders, No. 139, September 7, 1898, War Department, Adjutant-General's Office, for the purpose of giving transportation to soldiers sent home on sick furlough, will act as commissary of subsistence for paying commutation of rations to such soldiers under General Orders, No. 114, August 9, 1898, War Department, Adjutant-General's Office, and will obtain subsistence funds for the purpose by requisition on the chief commissary of the department in which the hospital is situated. For the purpose of making payments of commutation of rations in convenient form to those entitled, quartermasters on duty as above at general hospitals are authorized to keep subsistence funds at their own risk in their personal possession to an amount not exceeding \$3,000 at any one time; and the Quartermaster's Department is authorized to furnish transportation from time to time from the public depository to the hospital for such amounts of subsistence funds in currency as the quartermaster on duty as acting commissary thereat may call for.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 148.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 19, 1898.

By direction of the Acting Secretary of War, the following is published to the Army for the information and guidance of all concerned:

I. In view of the fact that under General Orders, No. 114, August 9, 1898, from this office, granting \$1.50 a day to sick soldiers while traveling to their homes on furlough, the commissary paying this commutation was required to note on the furlough "the days for which commutation of rations while traveling is paid" by him, and by the concluding part of Paragraph I of the same order the \$1.50 per day thus paid was not to be repaid to the United States by the soldier, it is ordered that when any of the days at \$1.50 per day are shown by the notation on the furlough to have been days covered by the period of the furlough, the officer paying furlough commutation under clause 1 of paragraph 1272 of the Regulations will refuse to allow 25 cents per day for those same days when computing the amount due the soldier on reporting at the expiration of the furlough.

II. Claims of soldiers alleging failure on their part to receive, at initial points of journeys, the commutation of rations at \$1.50 per day while traveling to their homes on furloughs granted under General Orders, No. 114, August 9, 1898, from this office, will be forwarded to the Commissary-General of Subsistence, accompanied (a) by the furlough, or (b) by a statement of the name of the disbursing officer who took up the furlough and paid commutation of rations thereon at 25 cents per day. Claims thus presented will be transmitted by the Commissary-General of Subsistence to the Auditor for the War Department, with a statement of the names of the disbursing commissaries in the neighborhood of the initial points of the journeys, in order that examination may be made by the Auditor of the accounts of those commissaries, and the accuracy of the claim of failure to receive the commutation verified before settlement by him. Claims for such commutation alleging loss of furlough will not be entertained.

III. Commanding officers of organizations ordered to be mustered out of the service are authorized to extend the leaves of absence and furloughs granted officers and men prior to the receipt of orders for muster out, to cover the period for which leaves and furloughs are granted under the provisions of General Orders, No. 130, August 29, 1898, from this office.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 149.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 20, 1898.

By direction of the Secretary of War the following instructions in the matter of pay of commissioned officers and enlisted men of volunteer organizations in the service of the United States are published for the information and guidance of all concerned:

Battalion adjutants and battalion sergeants-major, as extra officers and noncommissioned officers, are not authorized by law and can not be paid as such, except in cases where they held those positions in and were in service with State or Territorial militia organizations, whose members enlisted in the Volunteer Army in a body and were duly appointed to corresponding positions in the volunteer organizations composed of members of militia organizations so enlisting.

Should a vacancy occur in any of these offices after the muster in of the organization an appointment to fill such vacancy (which is prohibited by General Orders, No. 98, War Department, Adjutant-General's Office, July 15, 1898) will not, if made, entitle the appointee to pay as battalion adjutant or sergeant-major, and he will be entitled to pay only as hereinafter provided for in cases where details are made to those positions.

In all cases where extra officers, as adjutants and extra sergeants-major for battalions, are not authorized, lieutenants detailed as battalion adjutants can receive no more than mounted pay of their grade, their regimental commanders certifying that their duties require them to be mounted, and battalion sergeants-major, who may be detailed from sergeants of companies, will not be entitled to any pay other than the pay of their grade as company sergeants.

In cases where extra officers, as adjutants and sergeants-major for battalions, are authorized by law, the adjutants will be entitled to the pay of regimental adjutant and the sergeants-major to the pay of regimental sergeant-major; but should any such adjutants or any regimental quartermasters or assistant surgeons hold the rank of captain under State laws they can receive no more than the pay provided by the United States laws for the offices held by them respectively—that is to say, the salary attached to the office of adjutant or quartermaster is \$1,800 per annum and the salary attached to the office of assistant surgeon of less than five years' service is \$1,600 per annum.

The Acting Comptroller of the Treasury has decided that the salary attaches to the office and not to the rank of the incumbents of these offices.

By act of Congress approved July 7, 1898, the pay of chaplains of volunteers is fixed at that of a captain mounted, and they will be so paid from and after the date of the act.

By act of Congress also approved July 7, 1898, it is provided that all officers and enlisted men of volunteers shall be paid from the day on which they had their names enrolled for service in the Volunteer Army of the United States and joined for duty therein, after having been called for by the Governor on the authority of the President. Officers and enlisted men of volunteers who have not been paid for the period between date of enrollment and date of muster into the service of the United States may be paid the same upon the next pay rolls of their commands, upon proper muster for the same, great care being exercised to correctly state the date of enrollment and date from which pay was paid by the United States.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 150.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 21, 1898.

I. By direction of the Secretary of War, when volunteer soldiers whose regiments have been ordered to be or have been mustered out of the service report at military posts or stations from furlough or other absence from their commands, except desertion, the commanding officers thereof will notify the Adjutant-General of the Army, giving all possible information obtainable from the men covering the period of absence, to what date, and where last paid, etc. Descriptive lists of such men will be furnished from this office, on receipt of which commanding officers will cause the men to be examined by a medical officer on the prescribed blank form provided for the purpose, as required in General Orders, No. 124, August 20, 1898, from this office. The declaration on the physical examination blank required of the person to be discharged will be completed before the medical examination is made, but the certificate of the company commander thereon will not be executed.

Commanding officers will act as mustering officers in such cases unless there is a mustering officer present, and will have four detachment muster-out rolls prepared

for men belonging to the same regiment with the necessary discharge certificates, which latter will be delivered to the men with directions to proceed, if practicable, to the nearest paymaster for final payment, to whom two copies of the muster-out roll will be sent by *registered mail*, with the notification required by paragraph 150 of the Army Regulations.

If the station of the nearest paymaster is at a distance from the place of muster out, the discharge certificates will be sent with the rolls, and the paymaster will make payment by check through the commanding officer. Quarters and subsistence will be furnished the men until final payment is made.

The third copy of the muster-out rolls, with the descriptive lists, will be forwarded to the Adjutant-General of the Army, and the fourth copy to the adjutant-general of the State to which the organization belongs. Men of different regiments will not be mustered out on the same rolls.

II. By direction of the Acting Secretary of War, soldiers of volunteer organizations ordered to be mustered out of the service who are undergoing sentences of confinement imposed by courts-martial, *but not dishonorably discharged*, will be paroled during the period for which the organization is on furlough, and the unexecuted parts of their sentences will stand as remitted on the date of the muster out of their companies, with which they will be discharged.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 151. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 22, 1898.

I. By direction of the Acting Secretary of War, at least two medical officers shall always be left on duty with each volunteer regiment, including the surgeon with the rank of major, and all regiments will be allowed four hospital tents and field furniture to equip them for a regimental hospital for each regiment.

II. By direction of the Acting Secretary of War, paragraphs 85 and 886 of the Regulations are amended to read as follows:

85. The remains of officers killed in action, or who die when on duty in the field or at military posts, or when traveling under orders, will be inclosed in coffins, and unless claimed by relatives or friends will be transported by the Quartermaster's Department to the nearest military post or national cemetery, or, if so desired by their relatives, to their homes for burial. The expense of transporting the remains is payable from the appropriation for Army transportation, or from funds specially appropriated for that purpose; other expenses of burial are limited to \$75. If buried at the place of death, the fact will be reported to the Adjutant-General of the Army.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 155. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 27, 1898.

II. By direction of the Acting Secretary of War, Paragraph II, General Orders, No. 139, War Department, Adjutant-General's Office, September 7, 1898, is amended to read as follows:

General Orders, No. 130, August 29, 1898, from this office, is so far amended as to direct commissioned officers who belong to organizations furloughed for sixty days to await orders for their own convenience for that period instead of granting them leaves of absence.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

GENERAL ORDERS, }

No. 156. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 28, 1898.

I. The following order of the Acting Secretary of War is published for the information and guidance of all concerned:

Hereafter whenever any enlisted man of a volunteer regiment is promoted to be a

commissioned officer, he will be discharged as an enlisted man by the commanding officer of the regiment as of the date next preceding that of his muster in under his commission as an officer, and the date of such discharge reported by telegraph to the Adjutant-General of the Army.

II. Any soldier on furlough from New Orleans, La., or who may pass through that city for any purpose, should not be allowed to visit any camp or garrison until he has been detained under quarantine long enough to preclude any possibility of infection, owing to the fact that yellow fever is prevalent in that city and in four counties of the State of Mississippi.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 164. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, October 11, 1898.

I. By direction of the Secretary of War, chief mustering officers will make timely application to the Surgeon-General of the Army for the detail of medical officers of the Regular Army or of the Volunteer staff to make the physical examinations of officers and men required by General Orders, No. 124, August 20, 1898, from this office, and, to further expedite the examinations, will also detail under the provisions of said order medical officers of any one or more organizations of the same State for the examination of the officers and men of another regiment.

II. By direction of the Secretary of War, section 4 of Paragraph II of General Orders, No. 124, August 20, 1898, from this office, is so amended that when it is impracticable to secure a board of three medical officers to examine persons claiming disability incurred in the line of duty which, in the opinion of the medical officer, was not so incurred, mustering officers are authorized to convene boards composed of one or two medical officers, other than those who made the original examination, and when the convening of such a board is not possible they will themselves make the examination required and report the facts in the case to this office.

III. By direction of the Secretary of War, mustering officers will require medical officers of regiments ordered to be mustered out to render at once to the Surgeon-General of the Army such monthly reports of *sick and wounded* as they may have failed to forward, for any cause, at the time such reports were due. They will also require that *all* retained medical records, including registers of patients, be forwarded to that officer, to whom medical officers will apply for certificates that these reports and records have been filed in his office.

IV. By direction of the Secretary of War, section 14 of General Orders, No. 124, August 20, 1898, from this office, is so far amended as to require regimental commanders to sign the discharge certificates of *all* the officers of their commands and the mustering officers to sign the discharge certificates of regimental commanders.

V. By direction of the Secretary of War, mustering officers are hereby designated to act as inspectors of property submitted to them for condemnation for which officers of organizations ordered to be mustered out of the service are responsible, and they are authorized to order, "by direction of the Secretary of War," final disposition to be made of condemned property, except that mentioned in paragraphs 888 and 1463 of the Regulations.

VI. By direction of the Secretary of War, in view of Circular No. 31, August 12, 1898, from this office, and paragraph 141 of the Regulations, it is ordered that at each military post or camp a competent officer will be charged with the duty of seeing that all final statements are in proper form, as required by orders and regulations, before they pass to the soldier, and that proper notifications have been sent to the paymasters.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 168. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, October 16, 1898.

By direction of the Secretary of War, disbursing officers of the Subsistence Department are prohibited from paying commutation of rations at 25 cents per day on those furloughs (granted previous to orders for muster out), the periods of which cover days embraced in the thirty or sixty day periods of furloughs authorized by General

Orders, No. 130, August 29, 1898, and Paragraph III, General Orders, No. 148, September 19, 1898, from this office.

The commutation of rations due on all such previously granted furloughs will be paid by paymasters upon final discharge or muster out upon presentation of the furloughs by those to whom granted, care being taken not to allow double payments for the days (between the dates of such furloughs and the dates of discharge or muster out) which are covered by both furloughs; but paymasters will make no payments of commutation of rations on account of such previously granted furloughs unless the furloughs themselves are produced. When payment is made, note thereof will be indelibly stamped by the paymaster on the furlough paper and the same filed with the muster-out roll or final statement. Amounts so paid will be refunded by the Subsistence Department on settlement of paymasters' accounts.

Furloughs of the above character not presented to paymasters for payment as above provided for, but which may be presented to them or to subsistence officers after muster out of companies to which the men belonged, will be forwarded to the Commissary-General of Subsistence for settlement and payment.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

GENERAL ORDERS, }
No. 169. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, October 17, 1898.

I. By direction of the Secretary of War, General Orders, No. 124, August 20, 1898, and General Orders, No. 150, September 21, 1898, from this office, are so far amended as to require that officers and enlisted men held in service for physical examination after the organizations to which they belonged have been mustered out of service shall be discharged after such examination has been completed as of the date of their muster out on detachment muster-out rolls, unless otherwise ordered.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

REPORT OF THE INSPECTOR-GENERAL.

REPORT OF THE INSPECTOR-GENERAL OF THE ARMY.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, D. C., November 1, 1898.

SIR: I have the honor to submit the following report of the operations of this Department during the past year:

Since the rendition of the last annual report the changes in the military establishment preceding, or concurrent with, the campaign against Spain have crowded each other in rapid succession, affecting every branch of the Army and caused unusual activity and interest everywhere. In the Inspector-General's Department, the abolition of the inspection districts and the assignment of inspectors-general and acting inspectors-general to the headquarters of the several geographical military departments, as reorganized; the addition of three inspectors-general to the permanent commissioned force of the Department; the appointment of an inspector-general of volunteers for each army corps and for each division of the forces mobilized for the national defense, and the promotion of four inspectors-general to a higher rank in the Volunteer Army, and their selection to command troops in the field, are among the more important recent events.

The efforts of this department were directed to performing its particularly important functions with the rapidly growing armies called forth by the Government, and at the same time continue all its office duties connected with the War Department. The Inspector-General himself left his office to perform his inspecting duties in the field, with a party organized for the purpose, and proceeding under definite verbal instructions, the field duties being regarded, under the circumstances, as more important than remaining in his office. He continued these duties in this country and Cuba, where he remained until after the surrender of Santiago. It was not until after his return from Cuba that he took a command of troops. Another officer of this department performed the duties of inspector-general of the cavalry division during the entire campaign against Santiago, and a third was in command of one of the infantry divisions. Indeed, every division commander in front of Santiago de Cuba on July 1 had at some time served as inspector-general.

It was quite expected that the vast amount of work connected with the mobilization of a volunteer army of over 200,000 men and their preparation for active service should absorb the undivided attention of every department in the military establishment, and that the inspections usually made in the spring of the year should have to be deferred or omitted altogether. The energy of the commissioned personnel of this department was necessarily deflected from peace to war measures, and the part taken by them in the active operations against Spain speaks well for the department; and the duties assigned them, whether at home or in the field or in the face of the enemy, have been performed with promptness, ability, and success: and were far from being limited to inspection duties alone, but embraced quite a heterogeneous assortment.

The reports of inspection of the military establishment prior to the opening of the war, including garrisoned and ungarrisoned posts, supply depots, armories and arsenals, recruiting stations, and of the accounts of disbursing officers and of national cemeteries, made during the year, have been brought in great measure to the attention of the proper authorities, and indicate that the Army has maintained a high standard of efficiency and discipline, and stood ready to enter the campaign as the call came and fulfill many duties besides its own, and far beyond the previous specialty of the individual officers. The conduct of the Army, individually or in regiments, in groups, in batteries, brigades, divisions, and corps, has brought honor and success to American arms.

But perhaps nothing has been made clearer by experience than our need of periodical military maneuvers and experimental mobilization in times of peace to guard against unnecessary suffering and delays in times of war. The progress of civilized nations in the care and organization of their expanded armies in the first stages of war, guard their soldiers against much hardship, sickness, and loss. Lavish expenditure and untiring energy and kindest attention and sympathy as substitutes for accomplished skill may be successful, but, after all, are makeshifts.

The indomitable energy, the perpetual military prevision, the care and painstaking that was demonstrated from the White House down to the loading wharf through every branch and desk of the War Department to the final exit of an organized command of every arm and corps for service upon foreign soil deserve recognition.

The tableau at the last, when the General Commanding the Army, the General commanding the expedition, the Inspector-General of the Army, the chief quartermaster, engineer, and commissary, and others of the headquarters and subordinate staffs were assembled on the Port Tampa wharf, while far from the most memorable, may be referred to in passing as an illustrative scene and group indicating the interest and insistence with which "getting aboard" was watched, especially of such commands as the "Rough Riders" or brigades of regulars. Every time, even to the finish, that the recognized leaders of this expedition were met, whether in preparation, in campaign, or under the enemy's concentrated fire, it came with the consciousness of strength and assured success. And the soldierly accomplishments and conduct of the military and naval attachés of the friendly nations accredited to that expedition deserve the clearest recognition in every respect.

My connection with it, as far as my own sentiments were concerned, was in the soldierly desire to share to the utmost the dangers and hardships of my comrades, and be with them in their battles, and bear my share in our country's cause, as it might be assigned by my superiors. Such part as was allotted to me and mine in this Spanish war is now finished. How severe it has proved, and the strain and trial imposed, may be well known in many American households.

DISBURSEMENTS.

Owing to a change of system and the declaration of war with Spain in April, and the consequent breaking up of garrisons and transfer of officers to other fields of duty, the inspector's corps especially, being almost entirely ordered to command or to duty at the front, the customary third inspection of the accounts of most of the staff officers was not had; and to this fact is partially due the decrease, as compared with the previous year, of the total amount inspected for the fiscal year ending June 30, 1898. The accounts inspected according to the requirements of law for that fiscal year may be summarized as follows, though

it must be carefully held in mind that only a moiety of this year's disbursements are covered by inspections so far:

Balances taken up		\$5,665,491.89
Receipts from Treasury	\$40,774,383.63	
Receipts from other sources	2,007,409.23	
		42,781,792.86
Transfers from other officers		14,121,428.57
Total to be accounted for		62,568,713.32
Disbursements	\$44,527,604.42	
Deposited to credit Treasurer United States	1,064,289.70	
		45,591,894.12
Transferred to other officers	11,517,367.52	
		57,109,261.64
Balance		5,459,451.68
Balance distributed as follows:		
United States Treasury		4,289,661.61
United States depositories		1,155,123.53
Cash on hand		14,666.54

Of the \$14,666.54 reported as cash on hand, the sum of \$3,247.33 in State bonds was held by the president of the National Home for Disabled Volunteer Soldiers, and the sum of \$1,369.55 was reported as having been stolen from the safe of a post quartermaster, and the sum of \$38.47 was held by the treasurer of the United States Soldiers' Home; leaving only the sum of \$10,001.19 cash in the hands of disbursing officers of the Army at the close of the fiscal year, as against \$14,604.16 for the preceding year. This is 0.00002+ of the entire year's disbursements by them. The extreme and average in the hands of any Army disbursing officers were, respectively, \$1,953.92 and \$23.92; and in national bank depositories, respectively, \$49,856.86 and \$176.76, including post commissaries and quartermasters; and the highest amount at date of last inspection to the credit of any disbursing officer of the Army was \$267,035.14, and of the Soldiers' Homes, \$744,338.58.

The disbursements inspected for the past four fiscal years may be designated in groups, as follows:

	1895.	1896.	1897.	1898.
Army disbursements	\$28,632,335.86	\$26,594,408.37	\$29,873,506.27	\$22,283,505.40
River and harbor disbursements	21,455,330.44	18,275,977.87	14,357,562.56	15,479,935.46
Other civil disbursements	7,473,534.28	6,359,617.86	5,345,969.08	6,764,163.56
Total	57,561,200.68	51,230,004.10	49,577,037.91	44,527,604.42

The statement above shows a decrease of \$5,049,433.49 from the amount inspected during the preceding fiscal year, which is accounted for by the following statement:

Decreased disbursements:		
Adjutant-General's Department		\$333.32
Quartermaster-General's Department		2,444,400.62
Subsistence Department		439,889.23
Ordnance Department		231,680.13
Pay Department		4,149,752.62
Medical Department		465,604.05
		7,731,659.97

Increased disbursements:		
Engineer's Department	\$1,122,372.90	
Recruiting officers	5,146.10	
National Homes for Disabled Volunteer Soldiers	1,428,230.98	
Miscellaneous	126,476.50	
		2,682,226.48

Net decrease..... 5,049,433.49

During the past eight fiscal years the relation between the total amount involved and the disbursements, transfers, deposits in the Treasury, and balances on hand, appear as follows:

	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Disbursements	0.669	0.703	0.727	0.760	0.756	0.710	0.708	0.712
Transfers between officers .....	.214	.212	.191	.163	.158	.207	.197	.184
Redeposited in Treasury .....	.014	.027	.025	.015	.018	.013	.018	.017
Balances on hand .....	.103	.058	.057	.062	.068	.070	.079	.087

In 1891 the Treasury Department called attention to the large balances held by disbursing officers, and measures were at once taken to minimize the amounts so held to the actual needs of the service, with a result that for the two succeeding years the ratio was reduced 44 per cent. Since that date, however, there has been a gradual increase until for the year just closed an increase of over 50 per cent is shown over the ratio of 1892. The small percentage of amounts redeposited in the Treasury would seem to indicate that due economy was exercised in remitting funds to the disbursing officers, while a slightly larger per cent than last year's of the amount remitted was disbursed.

The average monthly disbursements of accounts inspected of officers of the Army for the year was \$3,146,953.40, and their final balances represented 173 per cent of this average as against 118 in 1897, 114 in 1896, 103 in 1895, and 89 in 1894.

The following table shows the variations in these percentages in the principal disbursing departments during eight fiscal years, to wit:

Department.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Engineer	293	104	82	75	83	116	133	180
Ordnance	191	124	105	115	139	113	130	86
Quartermaster	130	53	120	135	179	170	161	256
Subsistence	102	99	89	73	119	89	109	123
Medical	82	102	186	83	131	205	71	313
Pay	57	48	90	66	83	77	101	106
Total	191	99	94	88	107	125	118	173

The proportion of balances kept in personal possession by officers of the Army was about 0.0021, as against 0.0026 for the preceding year.

This table also shows a marked reduction for several years immediately succeeding the year 1891 in all except the Medical Department, and for the years 1892, 1893, and 1894 the average reduction per year (from the average for 1891) was more than 90 per cent. But since 1894 the yearly average has increased until the general average for the past year shows an increase of 85 per cent over that for 1894. Only one Department (the Ordnance) shows a reduction (29 per cent), and the other departments show the following large increases, viz: Medical, 230 per cent; Quartermaster's, 121 per cent; Engineer, 85 per cent, and the Pay Department, 42 per cent. At the Soldiers' Home, Washington, D. C., the final balances represented 46 per cent of the average monthly disbursements in 1884, 192 per cent in 1895, 102 per cent in 1896, and 112 per cent for the year just closed.

The total number of inspections made during the fiscal year 1898, including statements made under Army Regulations 877, verified by the inspector, was as follows:

Accounts.	1895.		1896.		1897.		1898.	
	Offi- cers.	Inspec- tions.	Offi- cers.	Inspec- tions.	Offi- cers.	Inspec- tions.	Offi- cers.	Inspec- tions.
General staff officers	235	588	211	546	216	558	205	362
Post staff officers	205	536	178	292	176	352	186	305
Other line officers	10	12	22	33	18	23	28	35
Soldiers' Homes	8	10	10	10	10	10	11	11
Disbursing clerk, War Department	1	1						
Total	459	1, 145	421	881	420	943	490	713
Average for each staff officer	2.5		2.1		2.5		1.7	
Average for each post officer	2.6		1.6		2.0		1.6	

Of the 713 inspections, involving \$62,568,713.32, it appears from the following tabulation that 526 inspections (including 171 accounts of post officers), involving \$58,494,245.01, were made by officers of this department, and 6 inspections (post officers only), involving \$18,024.41, were made by other officers, to wit:

Department.	Inspected.		
	Officers.	Inspec- tions.	Amount in- volved.
Adjutant-General	13	23	\$5,487.22
Quartermaster-General:			
Staff	56	101	8,956,494.91
Post	93	156	1,245,758.60
Subsistence:			
Staff	23	41	1,442,472.15
Post	93	149	513,490.50
Medical	4	9	292,855.36
Pay	23	43	15,545,062.47
Engineer	61	112	18,627,466.63
Ordnance	25	33	8,121,299.43
Recruiting officers	15	16	10,105.63
National Homes for Disabled Volunteer Soldiers	9	9	9,658,709.56
Miscellaneous	15	21	361,576.96
Total	430	713	62,568,713.32

Department.	By officers of the In- spector-General's Department.		By other officers.		Under Army Reg- ulations, para- graph 877.	
	No.	Amount.	No.	Amount.	No.	Amount.
Adjutant-General	16	\$3,746.60			7	\$1,090.63
Quartermaster-General:						
Staff	90	7,789,287.88			11	1,167,207.03
Post	87	724,902.83	5	\$17,173.22	64	804,577.55
Subsistence:						
Staff	34	1,322,364.39			7	120,107.76
Post	84	544,061.51			64	268,877.80
Medical	8	272,919.28	1	851.19	1	9,936.08
Pay	42	14,991,952.50			1	551,099.97
Engineer	101	17,811,158.55			11	819,307.08
Ordnance	81	4,609,999.68			2	511,308.75
Recruiting officers	8	2,281.98			8	7,828.65
National Homes for Disabled Volun- teer Soldiers	9	9,658,709.56				
Miscellaneous	16	763,769.25			5	97,807.61
Total	526	58,494,245.01	6	18,024.41	181	4,056,442.90
Per cent of total .....		.934+		.0002+		.065+

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS.

The inspection of this great and growing establishment made during the fiscal year 1898 was begun on July 31, 1897, and closed in November of the same year, covering a period of about four months, and the examination was thorough and searching. The report of the inspection was submitted to the Secretary of War on January 27, 1898, and on January 31 it was transmitted by him to Congress, where it was printed as House Document No. 278, second session Fifty-fifth Congress.

Paragraph 866 of the Army Regulations, which heretofore required that this inspection be made by the Inspector-General of the Army in person, was amended during the year by General Orders, No. 56, Headquarters of the Army, May 27, 1898, so that now the annual inspection of this institution may be made by some other officer of his department.

It was noted in the inspection that the officers of the Homes generally had performed their duties with enthusiastic zeal, strict economy, and commendable efficiency; and there was a general lack of deterioration everywhere.

During the fiscal year ending June 30, 1898, the population of the Home, as shown by the trimonthly reports from the Branches, ranged from 17,720 on June 30, 1898, to 19,270 on February 20, 1898; and the average population for the entire year was 18,570, a net gain over the preceding year of 392. The gain would have been much greater if there had been anywhere to put, or the means on hand for the legally authorized outdoor relief of, the many worthy and needy applicants who were turned away for want of room to accommodate them.

The appropriations for the Home for all purposes for the fiscal year amounted to \$2,871,135, of which, however, \$450,000 was for the new branch now under construction at Danville, Ill., leaving \$2,421,135 for the ordinary service of the seven established branches. The similar appropriations for the preceding fiscal year were \$2,489,973.16. Of the appropriation for the fiscal year 1898 the sum of \$81,464 was for special construction at the several branches, leaving \$2,339,671 for the maintenance of the members. The average cost of maintenance for the year per capita was \$125.99 as against \$121.15 for the preceding year, an increase of \$4.84.

The variations of annual cost of maintenance per capita since 1894 are shown by the following table, viz:

Year.	Popu- lation.	Expense per capita.
1894.....	15,601	\$141.41
1895.....	16,480	128.78
1896.....	17,451	126.08
1897.....	18,178	121.15
1898.....	18,570	125.99

The accounts have been received with great promptness during the year, and there has been for some years a steady decrease in the number of defects and irregularities noted in the examination of the vouchers, while the character of the exceptions noted remains about the same as for preceding years.

The character of the beneficial changes adopted from year to year are generally along the line of complete recognition of this institution, and its expenditures and officers, as entitled to the benefit and supervision given under the laws of the United States. That the individual

comfort and rights of the members were never more carefully regarded, though the per capita expenses have continued to be held within the strictest bounds, entitles the institution and its careful supervision to constant commendation. The responsibility for the expenditure of these millions is fairly recognized and enforced. The distinguished ability of the board of managers is well supplemented by the faithful and efficient services of the local officers, so commendable results are certainly now, as they may have always been, assured; and the institution stands unique among the nations of the world in extent and generosity, and is admirably supplemented by many State institutions, which are under its careful supervision for much of their disbursements.

The following is a summary of the receipts and disbursements for the fiscal year ending June 30, 1898:

STATEMENT A.—Receipts and disbursements, National Home for Disabled Volunteer Soldiers, during the fiscal year 1898.

	Fiscal year—				Total.
	1895.	1896.	1897.	1898.	
<i>General fund.</i>					
Balance on hand June 30, 1897...	\$138. 20	\$19, 211. 79	\$206, 171. 12		\$225, 521. 11
Received from Treasury			8, 422. 09	\$2, 439, 514. 00	2, 447, 936. 09
Posthumous fund, act Aug. 18, 1894				43, 623. 05	43, 623. 05
Sales, etc			2, 259. 42	63, 513. 13	65, 772. 55
Transfers and disallowances		134. 48	528. 69	781. 46	1, 444. 63
Total	138. 20	19, 346. 27	217, 381. 32	2, 547, 431. 64	2, 784, 297. 43
<i>Accounted for as follows:</i>					
Disbursements			60, 288. 10	2, 298, 698. 27	2, 358, 996. 37
Deposited in Treasury as surplus	138. 20	19, 346. 27	142, 043. 20		161, 527. 67
Transfers and allowances			291. 87	475. 17	767. 04
Total	138. 20	19, 346. 27	202, 623. 17	2, 299, 173. 44	2, 521, 281. 08
Balance on hand June 30, 1898...			14, 758. 15	248, 258. 20	264, 016. 35
Total	138. 20	19, 346. 27	217, 381. 32	2, 547, 431. 64	2, 785, 297. 43
<i>State-aid funds.</i>					
Balance on hand June 30, 1897...			11, 786. 22		11, 786. 22
Received from Treasury			213, 750. 00	700, 000. 00	913, 750. 00
Total			225, 536. 22	700, 000. 00	925, 536. 22
<i>Accounted for as follows:</i>					
Total disbursements			225, 536. 22	658, 570. 58	884, 106. 80
Balance on hand June 30, 1898...				41, 429. 42	41, 429. 42
Total			225, 536. 22	700, 000. 00	925, 536. 22

The appropriation accounts for the various fiscal years may be summarized as follows:

STATEMENT B.—*Appropriations.*

Appropriations.	Certified claims.	1895.	1896.	1897.	1898.	Total.
Balance in Treasury July 1, 1897			\$204,406.37	\$20,360.79		\$224,767.16
Amount of appropriations	\$176.59			6,494.41	\$2,671,010.00	2,677,681.00
Unexpended balances deposited		\$138.20	19,346.27	142,043.20		161,527.67
Total	176.59	138.20	223,752.64	168,898.40	2,671,010.00	3,063,975.83
Remitted to disbursing officers.				8,422.09	2,439,514.00	2,447,936.09
Paid on Treasury statements	176.59		1.12	178.22	178.59	534.52
Covered into surplus fund		\$138.20	\$223,751.52			223,889.72
Total	176.59	138.20	223,752.64	8,600.31	2,439,692.59	2,672,580.33
Balance in Treasury June 30, 1898				160,298.09	231,317.41	391,615.50
Total	176.59	138.20	223,752.64	168,898.40	2,671,010.00	3,063,975.83

^a Including Danville branch.

^b Surplus warrant received at Inspector-General's Office July 15, 1898.

During the past fiscal year there was received from the effects of deceased members (posthumous fund) the sum of \$13,623.05, and disbursed on the same account the sum of \$30,153.12, leaving a balance of \$13,469.93 to be carried to the appropriation for "current expenses" at the Branch Homes, as follows:

Branch.	Amount received.	Amount disbursed.	Balance to current expenses.
Central	\$17,493.45	\$15,063.04	\$2,430.41
Northwestern	7,035.78	4,321.98	2,713.80
Southern	5,153.54	4,390.51	763.03
Eastern	2,051.12	2,650.89	.73
Western	6,215.29	1,587.05	4,628.24
Pacific	2,709.75	1,165.55	1,544.20
Marion	2,364.12	974.60	1,389.52
Total	43,623.05	30,153.12	13,469.93

The transfer of posthumous funds to the appropriation for current expenses since this was required to be done by the act of August 18, 1894, has been as follows, by fiscal years:

Year.	Received.	Disbursed on posthumous account.	Balance to current expenses.	Covered into Treasury.
1894	^a \$152,232.63		^b \$123,058.74	\$29,173.89
1895	46,954.98	\$22,143.56	24,811.42	24,811.42
1896	43,674.74	22,841.63	20,833.11	20,833.11
1897	49,451.15	25,466.47	23,984.68	23,984.68
1898	43,623.05	30,153.12	13,469.93	13,469.93
Total	335,936.55	100,604.88	206,157.88	112,273.03

^a \$29,173.89 of this was covered into the Treasury.

^b 1895.

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The following is a brief statement of the appropriations, the net disbursements, and unexpended balances relating to the several fiscal years involved:

	1893 and certified claims.	1894.	1895.	1896.
Appropriated.....	\$2, 618, 190. 26	\$2, 379, 872. 99	\$2, 324, 473. 00	\$2, 514, 846. 00
Posthumous fund.....			a 152, 232. 63 24, 811. 42	20, 833. 11
Total.....	2, 618, 190. 26	2, 379, 872. 99	2, 501, 517. 05	2, 535, 679. 11
Net disbursements.....	b 2, 505, 401. 57	2, 197, 441. 06	2, 224, 691. 29	2, 811, 927. 59
Balance unexpended.....	112, 788. 69	182, 431. 93	276, 925. 76	223, 751. 52
Total.....	2, 618, 190. 26	2, 379, 872. 99	2, 501, 517. 05	2, 535, 679. 11
In United States Treasury.....				
Covered into Treasury on surplus warrants.....	112, 788. 69	182, 431. 93	276, 925. 76	223, 751. 52
In hands of disbursing officers.....				
Total.....	112, 788. 69	182, 431. 93	276, 925. 76	223, 751. 52

	1897.	1898.	Total.
Appropriated.....	\$2, 489, 973. 16	c \$2, 671, 010. 00	\$14, 998, 865. 41
Posthumous fund.....	23, 984. 68	13, 470. 00	152, 232. 63 83, 099. 21
Total.....	2, 513, 957. 84	2, 684, 480. 00	15, 233, 697. 25
Net disbursements.....	2, 330, 901. 60	2, 204, 904. 39	13, 775, 167. 50
Balance unexpended.....	183, 056. 24	479, 575. 61	1, 458, 529. 75
Total.....	2, 513, 957. 84	2, 684, 480. 00	15, 233, 697. 25
In United States Treasury.....	168, 298. 09	231, 317. 41	399, 615. 50
Covered into Treasury on surplus warrants.....			795, 897. 90
In hands of disbursing officers.....	14, 758. 15	248, 258. 20	263, 016. 35
Total.....	183, 056. 24	479, 575. 61	1, 458, 529. 75

a Act of August 18, 1894.

b Disbursements, less proceeds of sales and repayments.

c Including \$250,000, Danville Branch.

The subjoined tabulation shows the amount appropriated for maintenance of members and for special constructions for the fiscal years involved, viz:

Fiscal year.	Average membership.	Appropriation.	For special construction.	For maintenance.
1893.....	14, 661	\$2, 618, 012. 67	\$207, 540. 00	\$2, 410, 473. 67
1894.....	15, 601	2, 379, 872. 99	1, 309. 10	2, 378, 563. 89
1895.....	16, 480	2, 324, 473. 00	94, 100. 00	a 2, 230, 373. 00
1896.....	17, 451	2, 514, 846. 00	173, 500. 00	2, 341, 346. 00
1897.....	18, 178	2, 483, 478. 75	161, 814. 75	2, 321, 664. 00
1898.....	18, 570	b 2, 671, 135. 00	b 531, 464. 00	2, 339, 671. 00
1899.....		2, 821, 021. 00	124, 025. 00	2, 696, 996. 00
Total.....	100, 941	18, 012, 021. 41	1, 293, 752. 85	16, 719, 087. 56
Annual average c.....	16, 824	2, 531, 833. 40	194, 921. 81	2, 387, 015. 26
Annual average per capita c.....		150. 43	11. 58	138. 91

a Exclusive of \$123,058.74 appropriated from posthumous fund.

b Including \$450,000 for construction at Danville Branch.

c Exclusive of fiscal year 1899.

SOLDIERS' HOME.

The inspection of the Soldiers' Home required by the law of March 3, 1883, to be made by the Inspector-General in person once annually, was made for the year 1897 in November of that year, and included a Home year, ending September 30, 1897. It is believed that the public interest would be subserved by making the Home year correspond with the fiscal year of the Government, which ends annually on June 30. The report was submitted December 19, 1897, and the inspection of the Home, its records, accounts, management, discipline, and sanitary condition was thorough.

During the year ending September 30, 1897, the average number of officers and members present was 728, with an average of 402 absent, making an average membership of 1,139, an increase of 17 over the preceding year. The greatest number present was 752, on February 25, and the lowest was 671, on June 15, and the total cared for was 1,501, against 1,535 for the preceding year. Those reported absent, 402, were mostly on outdoor relief.

The age of the members present on October 15, 1897, ranged from 24 to 87, and averaged 55.7 years; and their length of military service ran from two months to thirty-one years, and averaged 15.3 years.

The behavior of the men during the year seems to have been good, though the infractions of rules and regulations had been somewhat in excess of the record for the previous year, and the buildings and grounds, to which many desirable improvements have been made, were generally in good condition and police.

The condition of the permanent fund is shown by the following tabulation, to wit:

Balance on hand September 30, 1896.....	\$2, 711, 124. 52
Credit settlements.....	134, 256. 23
Total.....	2, 845, 380. 75
Withdrawn for current expenses.....	107, 782. 80
Balance due September 30, 1897	2, 737, 597. 95

Property and stores of all kinds were in excellent condition, and evidently received careful attention. There were no complaints concerning the cooking or the quantity or quality of the food, and the dining hall and kitchen were in good order. Neatness and comfort seemed to prevail in the dormitories as a general thing. The supply of water is satisfactory both as to quality and quantity. The hospital was in excellent condition, and the hygienic conditions were well maintained, and the sick list and death rate have decreased.

MILITARY COLLEGES.

The annual inspection of the military departments of civil institutions of learning having an officer of the Army detailed thereat as professor of military science and tactics, which under existing orders should be made near the close of the college year, was necessarily omitted this year on account of the active operations against Spain, and the military professors as well as inspectors were assigned to other important posts, where their services were more urgently needed. The exigencies of the service demanded this temporary interruption in the military work carried on at these hundred or more institutions, and it is believed that this condition has generally been recognized and accepted in the proper spirit.

When peaceful pursuits are resumed it will doubtless be remembered that there are now some 15,000 young men annually receiving theoretical and practical military instruction at these institutions under carefully selected army officers, and nearly as many more are yearly exercised in military drills at public and private high schools under special instructors. The objects of this instruction are well understood, and it would therefore be interesting to learn the practical results of the military work accomplished at these institutions in connection with the recent struggle against Spain. They may never be fully known; and inquiry on this subject elicited only partial information; but the statistics given are suggestive and seem rather below than above actual conditions. The presidents of 46 colleges, whose military departments numbered about 7,100 students before hostilities began, reported that 29 of their military students and 59 alumni had been commissioned in the Regular Army, and 157 students and 296 alumni in the Volunteer Army—a total of 541 officers, or enough for about 12 regiments; and that 1,084 students and ex-students had joined the forces as noncommissioned officers or privates.

If these statistics may be accepted as a fair average, it is safe to assume that the regular and volunteer armies secured from the young gentlemen annually instructed in military science and tactics under Regular Army officers at these colleges enough trained officers for 24 regiments; and doubtless had the call for volunteers been more extensive or not so strictly limited to national guardsmen, many more would have joined the ranks, and joined in a body where they could preserve their identity, cohesion, and esprit de corps.

The following extracts from reports of presidents of colleges are submitted as illustrating the patriotic sentiments and readiness of these young men to serve their country:

Iowa State Normal School, Cedar Falls, Iowa.—We have reports from forty or more whom we know were in the service in some of the regiments; some from Illinois, from Wisconsin, Minnesota, the Dakotas, Kansas, etc. * * * The governor of Iowa would not accept organizations from schools, thinking it better that the school-trained men should be distributed among the different companies from the State; this decision however, deterred many of our cadets from enlisting. We could have raised one full company or more in the school at any time while men were needed.

St. Thomas Hall, Holly Springs, Miss.—The military spirit in the institution was simply splendid—all that could be desired. The instruction received here made Lieut. W. G. Poindexter, Company F, Second Mississippi Volunteers, practically the instructor and drillmaster for a large part of his regiment. The military instruction as been of very great advantage.

Ohio State University, Columbus, Ohio.—Our men enlisted so quickly and were sent to camp so soon that it has been impossible to secure exact statistics. In Battery H, out of 105 men some 35 were either students or ex-students. It was estimated that in the Fourth Ohio there were nearly 200 students and ex-students of this university.

De La Salle Institute, New York City.—Students from various sections of the country attended De La Salle, with regard to whom no information could be obtained. These, no doubt, took as active a part in the war with Spain as those in New York and vicinity. The limited number of volunteers prevented many former students of De La Salle Institute from enlisting in the Army. Had the demand been greater and the opportunity offered, several capable of filling commissions, by reason of their military training at this institution, would have gladly volunteered. I feel that the late war has been no test of the advantages to be derived from military instruction at educational institutions.

Cornell University, Ithaca, N. Y.—Colonel Schnyler, of the Two Hundred and Third New York Volunteers, was our commandant at the outbreak of the war. His estimate of the Cornellians in the war is 300, of whom 50 are actually in his regiment. It is certain not only that Cornellians went in all volunteer regiments from this State, but that they went in others, for instance, there were 3 Cornellians in the First Utah Light Battery. There were Cornellians in Colonel Roosevelt's regiment, and there are Cornellians in the Astor battery. * * * Many of our technological

graduates seemed attracted to the engineering service of the Navy, 15 of them being assigned to ships and some 25 others passing the examinations and being on the waiting list. Others who were already in the Revenue-Cutter Service were transferred to naval duty, 1 on the *McCulloch* sharing in Admiral Dewey's victory, others being assigned to blockade duty. * * * Aside from the naval engineer service, some 22 Cornellians joined the First New York Volunteer Engineers. * * * I think it altogether safe to say that 75 per cent of the Cornell soldiers in this war were either commissioned or noncommissioned officers.

St. John's College, Annapolis, Md.—There may be many names of alumni omitted for the reason that I report only those which have come under my immediate knowledge. I believe that the military instruction at colleges has been shown to be fraught with excellent results, and the presence of such trained men in volunteer regiments, whether as officers or privates, has proved a great means of establishing cohesion and discipline in bodies of men hastily assembled together.

University of South Dakota, Vermilion, S. Dak.—Not only is military instruction a most important precautionary measure for the country, but it has a most valuable effect on the physical, social, and moral character of the student body itself.

State Agricultural College, Fort Collins, Colo.—I feel disposed warmly to commend that heading in the annual report of the military department of the college under which is given the names of three cadets of the graduating class who have shown the most proficiency in the military work. Following this, the recent action of the War Department in giving some thus selected for complimentary mention a chance to show fitness for a commission in the Regular Army can not but be productive of good result. Now that a permanent increase in our national military force is almost an assured fact, would it not be well to make the selection of a few college cadets, of approved scholarship and proficiency in the military exercises, for suitable positions in the Regular Army a settled policy? Such recognition of deserving cadets, with the desire to follow the life of a soldier, would give impetus almost beyond measure to interest in every phase of college military instruction. I can not but think that the army organization would be rendered more efficient by such an infusion of young, virile force. There are some of our people who profess to see in the increase of our standing army a menace to personal rights and free institutions. This feeling will be materially weakened if people see important posts in that army filled by their sons and their neighbor's sons who have been educated in their home institutions of learning. The Government provides for the military training, more or less effective, of a large student body. If war comes, and there is no opening in army ranks for these trained and scholarly young men, save in the lines of raw recruits, they may reasonably question the purpose of such prolonged and costly military training. There ought to be a ready place in our war forces for any well-organized body of college cadets seeking active service, and there ought to be no unnecessary obstacles placed in the way of their enlistment.

Some recognition seems due these young men, who devote a large part of their college life to military work, and many of whom have become competent to assume the functions of a subaltern in the Army. The statistics presented indicate that the military instruction at these colleges has not been without substantial results and deserves still further encouragement. If the selection of some of the best military students for commissions in the Army were made part of our policy regarding army appointments, as recommended by me in previous annual reports and greatly desired by college presidents, the efficiency of the college military organizations would be very largely increased, and such a measure would be of benefit to the students, the colleges, and the Government.

DEPOTS.

Owing to the increased demands upon the time of the officers of this department during the year the usual routine of inspections was interfered with to some extent. Those of the army depots which were visited—generally during the first half of the fiscal year and antedating the breaking out of hostilities with Spain—were found to be in very good condition and the affairs well administered.

Storehouses are generally reported dry, well ventilated, and safe for the storage of supplies. The usual precautions are taken to protect buildings and property from fire and theft. A saving in salaries to employees of about

Quartermaster's Department.

\$5,500 per annum has been reported at San Francisco, Cal. The number of employees is generally reported barely sufficient for the proper transaction of business.

Some subsistence stores, consisting generally of canned tomatoes, were reported to the purchasing officer at Kansas City, Mo., for reclamation on account of defect or damage through the fault of the seller. As far as practicable, purchasing commissaries inspect all stores purchased. Storehouses are generally reported good and sufficient, and the stores properly classified and neatly arranged. The additional depots, authorized by Special Orders No. 171 c. s., have not yet been inspected.

THE ARMY AND NAVY GENERAL HOSPITAL.

This institution was inspected March 19, 1898, by Lieut. Col. P. D. Vroom, inspector-general middle district. Officers and enlisted men of the military and naval service of the United States, officers of the Revenue-Cutter Service and of the Marine-Hospital Service, and honorably discharged soldiers and sailors of the Regular and Volunteer Army and Navy of the United States are given treatment at this hospital for such diseases as are benefited by the waters of the Hot Springs of Arkansas. The principal diseases of those under treatment at date of inspection are reported as chronic articular and muscular rheumatism, and nervous diseases. The inspector calls attention to the regulation of May 5, 1897, extending the benefits of the hospital to honorably discharged soldiers and sailors of the Regular and Volunteer Army and Navy of the United States, and thinks that it will not be long before the capacity of the hospital will be taxed to its utmost, and that the construction of an additional ward would seem to be advisable.

ARSENALS AND ARMORIES.

A portion of the single barrack at the Indianapolis Arsenal is used as a hospital. A separate hospital building is reported as badly needed, and has been estimated for annually for the past seven years.

The following extracts from reports of annual inspections of arsenals and armories, made by Col. R. P. Hughes, inspector-general North Atlantic district, may be of interest:

NEW YORK ARSENAL, NEW YORK.

Obsolete guns. A goodly number of the old, obsolete guns that were encumbering the grounds when I made my last previous visit have been gotten rid of by presenting them to the associations of veterans of the war of the rebellion, etc. I regret to say that purchasers do not press for the obsolete small arms and ammunition that were then and are still in some of the storehouses. Of course, if the arsenal is ever hard pressed for space, this obsolete material can be discharged in a very short time, but it might be prudent to break up the most unpromising of it before the necessity arises.

SPRINGFIELD ARMORY, MASSACHUSETTS.

Improved machinery. The growth of improvements in the machinery of the armory still continues, and, in walking through the shops, the vacancies in the lines of machines resulting from an improved combination and contrivances on neighboring machines are quite noticeable.

Quality of material. Another noticeable step in advance seems to lie in demanding a better quality of material and more nearly approximating the size and shape into which it is to be molded in the factory. These changes seem to have permitted the output of the establishment to go on increasing without any appreciable increase in the expenditures for labor, which is

the capital item in the disbursements of the armory. That the steel manufacturers are able to produce the quality of metal now called for is quite conclusively shown from the fact that they consent, in their agreement, that any material that is found unsuitable in manufacturing may be returned and any expense incurred by the United States in the process of manufacture that led up to the rejection of any metal because of its unfitness shall be charged against them.

The consequence of these improved conditions is that the daily output of the armory has been about doubled since I went over the shops nearly two years ago, and the increase of the pay roll does not even approximate the same ratio.

WATERTOWN ARSENAL, MASSACHUSETTS.

Growth. The establishment has continued its growth as a manufactory of gun carriages in a very satisfactory way since my last visit to it, two years ago. The work has been improved by the introduction of new machine tools, and the organization of the tools to suit the demands of the progress of the work in hand has reduced the handling of materials very greatly. Measures have also been taken to secure easier shipment of great masses of material by constructing a dock on the banks of the Charles River within the arsenal limits.

The relations of these great institutions to the battlefield have become intensely interesting by the practical test of war. Perhaps never again will civilized nationalities display such heterogeneous examples of modern and obsolete cannon and small arms in such a circumscribed area of battle as was done in front of Santiago de Cuba. And doubtless it received the closest attention from those who were there.

INSPECTION SERVICE.

Almost simultaneously with the changes in the geographical departments, which were effected March 11, 1898, under General Orders, No. 7, from the Headquarters of the Army, the question of returning to the departmental system of inspections arose, and the amendments of paragraphs 857 to 860 of the Army Regulations, promulgated in General Orders, No. 11, Headquarters of the Army, March 23, 1898, and the assignment of inspectors-general and acting inspectors-general by Special Orders, No. 89, Headquarters of the Army, April 16, 1898, to the various military departments, practically abolished the inspection districts, which had been in successful operation since April 30, 1895.

The return to the departmental system of inspections necessitated primarily the detail of three additional officers as acting inspectors-general in order to assign one inspector to the headquarters of each department, and there was an increase in the permanent force of the Inspector-General's Department under the act of July 7, 1898. But whether the inspection service is conducted in time of peace under the district or departmental system seems immaterial so far as mobilization and organization of regular and volunteer forces in time of war are concerned, as was illustrated during the war with Spain. A general disassociation between department commanders and their former departments as well as troops took place, and four inspectors-general were given command of troops in the field, with increased rank, namely, General Hughes, who has won commendation at Manila; General Sanger, commanding a division in the First Corps; Maj. Gen. H. W. Lawton, whose conduct and command at Santiago are well known, and Maj. Gen. J. C. Breckinridge, who, after his return from the expedition to Cuba, was assigned to command the separate army at Chickamauga, composed of the Second and Third divisions of the First Corps and the First and Second divisions of the Third Corps and independent brigades of cavalry and artillery.

This sort of readjustment of army officials and service for the purpose of actual hostilities was felt throughout the whole fighting force. The number of line officers promoted or detailed to perform staff duties appears almost phenomenal.

The report of July 25, concerning the expedition to Santiago de Cuba, which has already been given to the public press, appears in Appendix B to the report to the Major-General Commanding the Army for some permanent record, together with some notes as to prior inspection duty and subsequent commands.

The assignment of inspectors-general and acting inspectors-general to the various military departments required a reassignment of the inspections not under the supervision of department commanders; and under General Orders, No. 109, Adjutant-General's Office, July 30, 1898, the Inspector-General of the Army is charged with the duty of keeping the inspectors-general of the military geographical departments informed, through the department commanders, of the inspections under paragraphs 868, 870, and 871 of the Army Regulations, and such other inspections which the Secretary of War desires shall be made by them. This has been done as far as practicable, except in the case of military departments of civil institutions of learning, owing to the temporary withdrawal, under the exigencies of the campaign, of the officers of the Army detailed thereat. Appendix A exhibits the inspections so far assigned to department inspectors under the orders referred to.

Whatever the assignment of the individual officers of the corps of inspectors, or the system of inspections, is it not demonstrated during this war that a sustained and expert central supervision and repository is essential to direct, represent, and give coherence to the persistent efforts and thorough work of the inspectors, and insure the beneficial results and intelligent and uniform methods which their high character and ability warrant, if a successful continuation of the inspection service is to be secured, no matter whether the War Department and General Commanding the Army have the direct control or share it with the Department commanders?

If it is agreed upon all sides that the Inspector-General's Department is a bureau of the War Department, with powers, duties, and processes in many respects identical with every other bureau; and its subordinates become the eye and ear of higher authority to insure uniformity, efficiency, and regularity, and record and report how all, even to the latest soldier, perform their duties and secure and receive their rights, this, of course, can only be efficiently accomplished under a wise system and concentration, and perfect and uniform supervision of expert authority, exactly as is essential with the Engineer or Medical Departments; otherwise minor and controllable errors must be expected to grow into public scandals, when public opinion demands the remedy of matters which apparently can attract no attention save through the public press.

The only place where such matters can soonest attract attention and be remedied in their incipiency is immediately where they arise, whether in the trenches and cooking place of the private soldier, or the desk or tent of the officer; and the branch of our service best trained, and with established traditions to quietly effect the necessary remedies and establish efficiency in every sphere of military activity, is the Inspector-General's Department, as long as the current and direction for information and effort is intimately maintained with the central bureau. The difficulties and importance of maintaining this connection was

fully recognized by this department, as may be indicated by the following telegram:

PORT TAMPA, FLA., June 12, 1898.

Gen. J. P. SANGER,

Acting Inspector-General, War Department, Washington, D. C.:

The discomfort, especially of the inexperienced enlisted men, seems enhanced by the unsystematic and unsupervised methods, or lack of inspections of volunteers by capable inspectors hitherto prevailing. Even the preliminary inspection of transports by officers of this department, recognized in General Sackett's Aide Memoire, does not seem to take place, and with results easily anticipated. Please send me a summary of the several inspection duties of both the corps and division inspectors-general (perhaps best if prepared in the form of an order); that may bring some good form out of present chaos.

BRECKINRIDGE,

Major-General Volunteers, Inspector-General.

But the requisite, full, and timely reports have not been received here from anything like a moiety of the inspecting officers. Is it believed they are not needed, even if addressed to another department? It seems that these reports, if actually started, would surely reach this office, where they belong. Some duties habitually pertaining to officers of this Department have been assigned to outsiders, and vice versa, though it is well in every sense that it should be inspectors who inspect—such inspectors-general as are named with the advice and consent of the Senate. There were no volunteer brigade inspectors authorized by law, so the number was inadequate, and there was no inspector-general at the headquarters of the great camp at Chickamauga, when it was inspected in May and June, under orders from Headquarters of the Army of May 17, 1898. Some of the best of the line officers of our Army and accomplished soldiers from former wars or the National Guard were made subordinate inspectors-general of volunteers, and how well they did whatever was permitted or assigned to them goes without saying, whether in isolation or with united effect and effort; and the instruction and benefit the volunteers received from them could only be properly appreciated in the day of battle and well-won victory. That, with a fair field and encouragement, they were capable of still more is only another proof of their superior quality, which it is hoped will some day be properly recognized, as that of some of their predecessors have been recognized before to-day for conduct in camp and battle.

NECESSITY OF INCREASING THE INSPECTOR-GENERAL'S DEPARTMENT.

No department of the military establishment comes in more intimate touch with every phase of army life, affecting the discipline, condition, and efficiency of the troops, than the Inspector-General's Department; and none more severely feels the inadequacy of its commissioned force. The act of July 7, 1898, increased the personnel of the Inspector-General's Department by 1 colonel, 1 lieutenant-colonel, and 1 major, with the proviso that no vacancies shall be filled until the department shall have been reduced to its original strength, which was 7 officers, including the chief. The increase, therefore, is very temporary and inadequate, and the department is liable at any moment to suffer a reduction in force. The number of regular inspectors now in the department, if all were available for inspection duty, would be barely sufficient for the eight military departments within the United States. And certain other inspections, such as disbursements, which possibly may be accepted as aiding the prevailing regularity in the public service,

must, of course, be adequately provided for. But other military departments have been established in the recently acquired territory which require the services of inspectors-general, as well as demand a largely increased army. The need, therefore, of permanently increasing the Inspection Department is apparent; and it is urgently recommended that the number of subordinate inspectors-general be permanently and adequately increased. If the Army is doubled or quadrupled the proportion in which the Department should be strengthened or increased, will doubtless be fairly recognized and is specially important during a transition period.

Inspection work, to have the most beneficial effect, must be thorough; and to do it thoroughly the force must be increased with the increase of the Army and the increase of territory.

INSPECTION OF UNSERVICEABLE PROPERTY.

The laws and regulations existing prior to the beginning of the fiscal year required that all property presented for condemnation should be inspected by officers of this Department, or acting inspectors-general, or some officer especially designated for each inspection entirely disconnected with the supply department or any association with the property. This old-established system worked most economically and satisfactorily, and it avoided the necessity of an officer destroying or selling the public property of the department to which he belonged or property committed to his or its care for public purposes without a careful examination by a disinterested outsider.

With the cessation of hostilities and the mustering out of volunteer troops there is apt to remain much unserviceable property requiring the condemnatory action of an inspector, which emphasizes the importance of confiding such duty to careful officers of ripe experience and good judgment in this line of duty; but the effort may become more insidious and persistent to be freed from such an absolutely reliable and economical system as this long-established one, under which the accountable bureau requests such public property should be eliminated from the public service, and then the Inspection Bureau carefully scrutinizes it, and nothing is done as in a close corporation.

In ordinary times of peace the original value of property presented for condemnation in the course of a year is considerable. During the past year it approximated \$1,706,000, of which over \$790,000 worth was recommended retained in service. Eighty-three per cent of these inspections were made by officers connected with this department. As the economy of this branch of the service depends in a large measure upon the action of the inspector, it is apparent that he should be thoroughly experienced in the work; and perhaps none can do this duty more satisfactorily than those who have made a specialty of the subject and have been regularly named for this duty under the law and confirmed therein by the Senate under its constitutional function. The distinction between the publicity and system for accepting private property and destroying public property should not be obscured. The law of March 3, 1825, which has continued in force ever since that date, wisely restricts these inspections to inspectors-general, or such other officers as the Secretary of War may appoint for that purpose, and is explicitly supplemented by paragraph 878 of the Army Regulations, which requires that the officers designated for these inspections shall not in any way be connected with the staff department, corps, post, or particular organization to which the property to be inspected pertains. This is the

fundamental principle for good administration in these matters, and the intention of the law concerning the inspection of money and property can be best shown by quoting it in full, as follows:

AN ACT to authorize the sale of unserviceable ordnance, arms, and military stores.

That the President of the United States be, and he is hereby, authorized to cause to be sold any ordnance, arms, ammunition, or other military stores, or subsistence or medical supplies, which, upon proper inspection or survey, shall appear to be damaged or otherwise unsuitable for the public service, whenever, in his opinion, the sale of such unserviceable stores will be advantageous to the public service.

SEC. 2. That the inspection or survey of the unserviceable stores shall be made by an inspector-general, or such other officer or officers as the Secretary of War may appoint for that purpose; and the sales shall be made under such rules and regulations as may be prescribed by the Secretary of War. (Approved, March 3, 1825.)

AN ACT to provide for the inspection of the disbursements of appropriations made by officers of the Army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be the duty of the Secretary of War to cause frequent inquiries to be made as to the necessity, economy, and propriety of all disbursements made by disbursing officers of the Army, and as to their strict conformity to the law appropriating the money; also to ascertain whether the disbursing officers of the Army comply with the law in keeping their accounts and making their deposits; such inquiries to be made by officers of the inspection department of the Army, or others detailed for that purpose: *Provided,* That no officer so detailed shall be in any way connected with the department or corps making the disbursement.

SEC. 2. That the reports of such inspections shall be made out and forwarded to Congress with the annual report of the Secretary of War. (Approved April 20, 1874.)

How intimately expenditures and property are related, and the importance of similarly organized scrutiny, if economy and good order are to be effectively assured, seems self-evident. Wherever inspections have been hampered, even to these very times, the results can perhaps be foreseen and illustrated. However plausible the reasons given, are they sufficient to demand that inspections and the Inspector-General's Department should not be encouraged nor be allowed to do their perfect work?

Respectfully submitted.

J. C. BRECKINRIDGE,
Inspector-General.

The SECRETARY OF WAR.

APPENDIX A.

Statement showing inspections not under control of department commanders assigned department inspectors-general under the provisions of General Orders, No. 109, Adjutant-General's Office, July 30, 1898, exclusive of military departments of colleges, most of which, under the exigencies of the campaign, temporarily lost the services of the army officer detailed thereat.

SUMMARY.

Annual	76
Twice yearly	5
Thrice yearly	192
Biyearly	80
Total	353

DEPARTMENT OF THE EAST.

Annual	18
Twice yearly	1
Thrice yearly	45
Biyearly	1
Total	65

Depots.—Quartermaster's, subsistence, and medical depots at New York City.
Armories and arsenals.—Kennebec Arsenal, Augusta, Me.; New York Arsenal, Governors Island, N. Y.; Sandy Hook Proving Ground, Sandy Hook, N. J.; Springfield Armory, Springfield, Mass.; United States Powder Depot, Dover, N. J.; Watertown Arsenal, Watertown, Mass., and Watervliet Arsenal, West Troy, N. Y.

Recruiting rendezvous.—Fort Slocum, N. Y.

Recruiting stations.—Albany, Brooklyn, and New York City, N. Y.; Boston and Springfield, Mass.

Disbursements and accounts of disbursing officers.—Once each year: Ordnance officers stationed at Augusta, Me.; Dover, N. J., and Providence, R. I.

Twice each year: Ordnance officer stationed at Sandy Hook, N. J.

Three times each year: All other disbursing officers at Boston, Mass.; Buffalo, N. Y.; New London, Conn.; Newport, R. I.; New York City, N. Y.; Portland, Me.; Springfield and Watertown, Mass., and Watervliet and Willets Point, N. Y.

National cemeteries.—Once in two years under Army Regulations, 867, cemetery at Woodlawn, N. Y.

DEPARTMENT OF THE GULF.

Annual	9
Twice yearly	1
Thrice yearly	45
Biyearly	16
Total	71

Depots.—Subsistence depots at Chattanooga, Tenn.; Atlanta, Ga.; Tampa, Jacksonville, and Miami, Fla.

Arsenals.—Augusta, Ga., and San Antonio, Tex.

Recruiting stations.—Dallas, Tex.

Disbursements and accounts of disbursing officers.—Once each year: Ordnance officers stationed at Augusta Arsenal, Ga., and San Antonio Arsenal, Tex.

Twice each year: Officers stationed at Key West, Fla.

Three times each year: All the disbursing officers stationed at Atlanta and Savannah, Ga.; Charleston, S. C.; Chattanooga, Tenn.; Jacksonville, St. Augustine, and Miami, Fla.; Mobile and Montgomery, Ala.; and New Orleans, La.

National cemeteries.—Once in two years under Army Regulations, 867, cemeteries at Alexandria, La.; Andersonville, Ga.; Barrancas, Fla.; Baton Rouge, La.; Beaufort, S. C.; Brownsville, Tex.; Chalmette, La.; Corinth, Miss.; Florence, S. C.; Marietta, Ga.; Mobile, Ala.; Natchez, Miss.; Port Hudson, La.; San Antonio, Tex.; St. Augustine, Fla.; and Vicksburg, Miss.

DEPARTMENT OF THE LAKES.

Annual	17
Twice yearly	1
Thrice yearly	34
Biyearly	19
Total	71

Depots.—Quartermaster's depot at Jeffersonville, Ind.; subsistence depots at Chicago, Ill., and Cincinnati, Ohio.

Arsenals.—Rock Island, Ill.; Columbia, Tenn., and Indianapolis, Ind.

Recruiting rendezvous.—Columbus Barracks, Ohio, and Fort Sheridan, Ill.

Recruiting stations.—Chicago, Ill.; Cincinnati and Cleveland, Ohio; Indianapolis, Ind.; Louisville, Ky.; Milwaukee, Wis.; Nashville, Tenn., and Evansville, Ind.

Disbursements and accounts of disbursing officers.—Once each year: Ordnance officer stationed at Cleveland, Ohio.

Twice each year: Ordnance officer stationed at Columbia Arsenal, Tenn.

Three times each year: All other disbursing officers stationed at Chicago and Rock Island, Ill.; Cincinnati and Cleveland, Ohio; Detroit, Mich.; Indianapolis and Jeffersonville, Ind.; Louisville, Ky.; Memphis, Tenn., and Milwaukee, Wis.

National cemeteries.—Once in two years under Army Regulations, 867, cemeteries at Camp Butler, Ill.; Camp Nelson, Ky.; Cave Hill, Ky.; Chattanooga, Tenn.; Crown Hill, Ind.; Danville, Ky.; Fort Donelson, Tenn.; Knoxville, Tenn.; Lebanon, Ky.; Lexington, Ky.; Memphis, Tenn.; Mill Springs, Ky.; Mound City, Ill.; Nashville, Tenn.; New Albany, Ind.; Quincy, Ill.; Rock Island, Ill.; Shiloh, Tenn., and Stone River, Tenn.

DEPARTMENT OF MISSOURI.

Annual	11
Thrice yearly	3
Biyearly	11
Total	25

Depots.—Quartermaster, subsistence, and medical depots at St. Louis, Mo.

Arsenal.—Powder depot, Jefferson Barracks, Mo.

Hospital.—Army and Navy Hospital, Hot Springs, Ark.

Recruiting rendezvous.—Jefferson Barracks, Mo.

Recruiting stations.—St. Louis, Mo., and Des Moines, Iowa.

Disbursements and accounts of disbursing officers.—Once each year: Disbursing officers stationed at powder depot, Jefferson Barracks, Mo., and Army and Navy Hospital, Hot Springs, Ark.

Three times each year: Disbursing officers stationed at Little Rock, Ark., St. Louis, and Jefferson Barracks, Mo., and Sioux City, Iowa.

National cemeteries.—Once in two years under Army Regulations, 867, cemeteries at Fayetteville, Fort Smith, and Little Rock, Ark.; Fort Leavenworth and Fort Scott, Kans.; Jefferson Barracks, Jefferson City, and Springfield, Mo.; Fort Gibson, Ind. T.; Fort McPherson, Nebr., and Keokuk, Iowa.

DEPARTMENT OF DAKOTA.

Thrice yearly.....	4
Biyearly.....	1
Total.....	5

Disbursements and accounts of disbursing officers.—Three times each year, disbursing officers stationed at St. Paul and Duluth, Minn.

National cemeteries.—Once in two years, under Army Regulations, 867: Cemetery at Custer Battlefield, Montana.

DEPARTMENT OF CALIFORNIA.

Annual.....	5
Twice yearly.....	1
Thrice yearly.....	14
Biyearly.....	1
Total.....	21

Depots.—Quartermaster, subsistence, and medical depots at San Francisco, Cal.

Arsenal.—Benicia Arsenal, Cal.

Recruiting station.—San Francisco, Cal.

Disbursements and accounts of disbursing officers.—Twice each year: Disbursing officers stationed at Benicia Arsenal, Cal.

Three times each year: Disbursing officers stationed at San Francisco, Cal.

National cemeteries.—Once in two years under Army Regulations, 867, cemetery at San Francisco, Cal.

DEPARTMENT OF COLUMBIA.

Total, 8; all thrice a year.

Disbursements and accounts of disbursing officers.—Three times each year: Disbursing officers stationed at Portland, Oreg., Spokane and Seattle, Wash.

INSPECTIONS FROM INSPECTOR-GENERAL'S OFFICE, WASHINGTON.

Annual.....	16
Twice yearly.....	1
Thrice yearly (including additional paymasters).....	39
Biyearly.....	31
Total.....	87

Depots.—Quartermaster's depot, Philadelphia, Pa.; Washington, D. C.

Armories, arsenals, etc.—Allegheny Arsenal, Pittsburg, Pa.; Fort Monroe Arsenal, Fort Monroe, Va.; Frankford Arsenal, Philadelphia, Pa.

Recruiting stations.—Baltimore, Md.; Charlotte, N. C.; Wilmington, Del.; Philadelphia and Pittsburg, Pa., and Richmond, Va.

Disbursements and accounts of disbursing officers.—Once each year: Ordnance officers stationed at Baltimore, Md.; Midvale, Pittsburg, and South Bethlehem, Pa., and Wilmington, Del.

Twice each year: Ordnance officer stationed at Fort Monroe Arsenal, Va.

Three times each year: All other disbursing officers at Baltimore, Md.; Frankford Arsenal, Pa.; Norfolk, Va.; Philadelphia and Pittsburg, Pa.; Washington, D. C.; Wilmington, Del.; Wilmington, N. C., and St. Asaph, Va.

National cemeteries.—Once in two years under Army Regulations, 867, cemeteries at Alexandria, Va.; Annapolis, Md.; Arlington, Va.; Antietam, Md.; Ball's Bluff, Va.; Battle Ground, D. C.; Beverly, N. J.; City Point, Va.; Cold Harbor, Va.; Culpeper, Va.; Danville, Va.; Finns Point, N. J.; Fort Harrison, Va.; Fredericksburg, Va.; Gettysburg, Pa.; Glendale, Va.; Grafton, W. Va.; Hampton, Va.; Newbern, N. C.; Philadelphia, Pa.; Poplar Grove, Va.; Raleigh, N. C.; Richmond, Va.; Salisbury, N. C.; Seven Pines, Va.; Soldiers' Home, D. C.; Staunton, Va.; Wilmington, N. C.; Winchester, Va.; Yorktown, Va., and Loudon Park, Md.

REPORT OF THE JUDGE-ADVOCATE-GENERAL.

REPORT

OF THE

JUDGE-ADVOCATE-GENERAL, U. S. A.

WAR DEPARTMENT,
JUDGE-ADVOCATE-GENERAL'S OFFICE,
Washington, D. C., October 3, 1898.

Hon. RUSSELL A. ALGER,
Secretary of War.

SIR: I have the honor to submit the annual report of the Judge-Advocate-General's Department for the twelve months ending August 31, 1898.

Commissioned officers tried by general court-martial:	
Regulares	3
Volunteers	12
Enlisted men tried by general court-martial:	
Regulares (convicted, 1,148; acquitted, 94)	1,242
Volunteers (convicted, 497; acquitted, 126)	623
Total trials by general court-martial	1,880
Trials by general court-martial in Regular Army:	
Twelve months ending August 31, 1897	1,384
Twelve months ending August 31, 1898	1,245
Decrease	139
Decrease in number of trials by general court-martial in the Regular Army as compared with previous twelve months:	
Twelve months ending August 31, 1893	28
Twelve months ending August 31, 1894	9
Twelve months ending August 31, 1895	461
Twelve months ending August 31, 1896	242
Twelve months ending August 31, 1897	102
Twelve months ending August 31, 1898	139

Of the 94 trials in the Regular Army noted as "acquitted," 61 were acquittals upon the merits and the other 33 were cases in which the sentences were disapproved on account of some fatal irregularity.

The following table shows, approximately, the number of convictions in the Regular Army of different offences by general court-martial during the twelve months ending August 31, 1898:

Seventeenth article of war:	
Losing clothing	5
Losing Government property	12
Selling clothing	10
Spoiling horse, arms, accoutrements, etc	2
Twentieth article of war:	
Disrespect to commanding officer	12

Twenty-first article of war:	
Assaulting superior officer	1
Disobeying superior officer	70
Twenty-fourth article of war:	
Disobeying noncommissioned officer quelling f ray	2
Thirty-second article of war:	
Absence without leave	245
Thirty-third article of war:	
Failure to attend drill, roll call, etc.	96
Thirty-sixth article of war:	
Hiring another to do his duty	1
Thirty-eighth article of war:	
Drunkenness on duty	102
Thirty-ninth article of war:	
Quitting post	31
Sleeping on post	24
Fortieth article of war:	
Quitting guard	31
Forty-seventh article of war:	
Desertion	176
Fifty-eighth article of war:	
Manslaughter	1
Murder	1
Presenting, or causing to be presented, false and fraudulent claims against the United States	1
Robbery	1
Sixtieth article of war:	
Larceny	9
Selling Government property	3
Sixty-first article of war:	
Duplication of pay vouchers	1
Other offences charged as "conduct unbecoming an officer and a gentleman"	2
Sixty-second article of war:	
Absence without leave, not chargeable under the thirty-second article of war.	43
Abusing public animal	16
Affray	2
Aiding and abetting larceny	1
Aiding and abetting the passing of stolen goods	1
Allowing prisoner to escape	12
Assault	13
Assault and battery	38
Assault with dangerous or deadly weapon	28
Assault with intent to kill	17
Attempt at arson	2
Attempt to create a disability in order to obtain discharge	1
Attempt to desert the service	1
Attempt to suborn a witness	1
Breach of arrest	33
Breaking parole	1
Burglary	3
Carrying concealed weapons	2
Committing a nuisance	9
Destroying public property	2
Disobedience of standing orders or regulations	24
Disobeying commissioned officer	31
Disobeying noncommissioned officer	110
Disobeying sentinel	8
Disorderly conduct	39
Disposing of clothing	3
Disrespect to noncommissioned officer	28
Disrespect to sentinel	4
Disrespect to superior officer	20
Drunkenness	64
Drunk and disorderly	54
Drunkenness, etc., causing arrest, etc., by civil authorities	5
Embezzlement	7
Failure to pay debts	1
False accusation	1
False statement or report	39
Fighting	8

Sixty-second article of war—Continued.

Forgery	3
Fraudulent enlistment	69
Inciting disobedience and mutiny	5
Indecent exposure of person	4
Insubordinate conduct toward commissioned officer	18
Insubordinate conduct toward noncommissioned officer	76
Larceny	81
Malicious destruction of private property	2
Malingering	1
Neglect of duty	66
Out of quarters after taps	1
Permitting prisoner to obtain intoxicating liquor	6
Receiving and disposing of stolen property	6
Resisting arrest	20
Selling, losing, or wasting Government property	20
Sentinel permitting prisoner to obtain liquor	2
Threatening noncommissioned officer	13
Threatening superior officer	5
Transfer by officer of pay accounts before due	2
Trespass	1
Using profane and indecent language	4
Disorder, etc., charged as "conduct to the prejudice of good order and military discipline" (not included under previous heads)	23

During the period covered by this report there were 450 enlisted men of the Regular Army discharged pursuant to sentence of general court-martial, 123 of these discharges being for minor offences on proof of five or more previous convictions.

The following table shows, approximately, the number of convictions in the Volunteer Army of different offences by general court-martial up to and including August 31, 1898:

Seventeenth article of war:	
Losing clothing	2
Selling clothing	1
Twentieth article of war:	
Disrespect to commanding officer	12
Twenty-first article of war:	
Assaulting superior officer	7
Attempting to strike superior officer	8
Disobeying superior officer	98
Twenty-second article of war:	
Mutinous conduct	1
Twenty-fourth article of war:	
Disobeying commissioned officer quelling a fray	1
Disobeying noncommissioned officer quelling a fray	3
Thirty-first article of war:	
Lying out of quarters	2
Thirty-second article of war:	
Absence without leave	97
Thirty-third article of war:	
Failure to attend drill, roll call, etc	2
Thirty-eighth article of war:	
Drunkenness on duty	34
Thirty-ninth article of war:	
Quitting post	8
Sleeping on post	97
Fortieth article of war:	
Quitting guard	11
Forty-seventh article of war:	
Desertion	18
Fifty-fifth article of war:	
Disorderly in quarters	1
Fifty-eighth article of war:	
Assault and battery with intent to kill	1
Burglary	1
Larceny	9
Manslaughter	1
Murder	1

Sixtieth article of war:	
Larceny	2
Selling Government property	1
Sixty-first article of war:	
Offences charged as "conduct unbecoming an officer and a gentleman"	3
Sixty-second article of war:	
Absence without leave, not chargeable under the thirty-second article of war	11
Allowing prisoner to escape	3
Assault	10
Assault and battery	9
Assault upon sentry	2
Assault with dangerous or deadly weapon	7
Assault with intent to kill	1
Breach of arrest	4
Disobedience of standing orders or regulations	2
Disobeying commissioned officer	18
Disobeying noncommissioned officer	34
Disobeying sentinel	3
Disorderly conduct	10
Disposing of clothing	1
Disrespect to noncommissioned officer	6
Disrespect to sentinel	5
Disrespect to superior officer	5
Drunkenness	11
Drunk and disorderly	41
Drunkenness, etc., causing arrest, etc., by civil authorities	2
Embezzlement	3
Escaping from guardhouse	2
False statement or report	2
Fighting	3
Forgery	2
Indecent exposure of person	1
Insubordinate conduct toward commissioned officer	24
Insubordinate conduct toward noncommissioned officer	33
Larceny	14
Neglect of duty	4
Resisting arrest	6
Robbery	1
Threatening noncommissioned officer	2
Threatening superior officer	5
Disorder, etc., charged as "conduct to the prejudice of good order and military discipline" (not included under previous heads)	66

The number of men of the Volunteer Army discharged pursuant to sentence of general court-martial up to August 31, 1898, inclusive, is 90.

The following table shows the convictions of desertion, classified according to the limit of punishment prescribed in the order of the President, published in General Orders No. 16, Headquarters of the Army, 1898:

	Regulars.	Volunteers.	Limit of confinement.
Surrendered:			<i>Months.</i>
After an absence of not more than 30 days	9	1	12
After an absence of more than 30 days	48		18
Apprehended:			
In service not more than 6 months at time of desertion	87	17	18
In service more than 6 months	82		30
Total number of desertions	176	18	
Average limit of confinement (months)	23.28+	17.67—	

In connection with this table it is to be observed that the limits of punishment are prescribed for "time of peace" only.

Convictions of desertion in Regular Army for twelve months ending—

August 31, 1894.....	518
August 31, 1895.....	255
August 31, 1896.....	256
August 31, 1897.....	244
August 31, 1898.....	176

At the last session of Congress an act was passed amending the act establishing the summary court, making it applicable in time of war as well as in time of peace, and abolishing the field officer's court. By this act the commanding officer of each garrison, post, or other place, regiment or corps, detached battalion or company, or other detachment in the Army, is given power to appoint a summary court for his command, or, in his discretion, for each battalion thereof, reserving, however, to superior authority the power to appoint the court when by such authority deemed desirable. When but one commissioned officer is present with a command he himself sits as the summary court. The garrison and regimental courts-martial are superseded by the summary court, except in the cases of noncommissioned officers who object to trial by summary court. With this exception—and the cases arising under it will be few—the courts for the trial of military offences now are the general court-martial and the summary court; and we are no longer obliged, as was recently the case, on the breaking out of war, to change from one system to another—that is, from the summary court to the field officer's court—nor to change back again to the summary court at the end of war, as would have been necessary had the present legislation not been enacted. The summary court is now the regular permanent inferior court-martial, both in time of peace and of war. It is believed that the present act will meet every possible requirement.

There has also been issued a new Executive order, fixing the limits of punishment (General Orders, No. 16, Adjutant-General's Office, 1898), in which certain important amendments of the order previously in force have been made.

These two measures have been adopted in order to remove defects in the system of administration of military justice which the experience of the Army had pointed out. The system is now on a good footing, with one exception. This exception is the lack of power on the part of courts-martial to compel civilian witnesses to testify. There have heretofore been failures of justice on this account, and during the present year a general court-martial sitting for the trial of an important case has been shut off from material evidence by the refusal of civilian witnesses to answer legal questions. It is to be hoped that Congress will afford some relief—if not by giving general courts-martial the power to punish for contempt, at least in such other form as may be deemed best. I shall at the proper time invite attention to this matter separately.

The following publications, prepared in this office, have been issued since my last annual report: Two editions of the Manual for Courts-Martial and of Procedure under Military Law; Remarks on the Army Regulations and Executive Regulations in General; The Use of the Army in Aid of the Civil Power; The Justification of Martial Law (a reprint from the North American Review); Military Reservations, National Military Parks, and National Cemeteries, Title and Jurisdiction.

The last-named work, prepared by Mr. James B. McCrellis, contains a summary of the title deeds of all the military reservations, etc., and the acts ceding jurisdiction over the same—information which, it is believed, will be found very useful to have in this form. In the

appendix to this work is a collection of authorities on questions relating to "Eminent domain," "Jurisdiction," "Taxation," and "Title."

A revision of the Digest of the Opinions of the Judge-Advocate General has also been begun, the work having been intrusted to Capt. Charles McGlure, Eighteenth Infantry, but this officer having, at his own request, been relieved, in order to enable him to join his regiment during the present war, it has been temporarily discontinued. The work is important, and I hope that it may soon be resumed.

The number of officers in the Judge-Advocate-General's Department has been insufficient to meet the demands made upon it, even with the small army we have had. With an army enlarged as it seems likely that ours will be, the increase of the Judge-Advocate-General's Department will be necessary. It now consists of only eight officers. With an army of 100,000 men, or even 75,000 men, double that number would be required. I shall, in due time, also invite attention to this matter separately.

The reports of the judge-advocates of departments have not been appended to this report for the reason that but few of them have been received, and that they are necessarily incomplete, owing to the fact that most of the troops have been in the field during a portion of the year covered by this report.

G. N. LIEBER,
Judge-Advocate-General.

**REPORT OF THE QUARTERMASTER-GENERAL
OF THE ARMY.**

REPORT OF THE QUARTERMASTER-GENERAL.

QUARTERMASTER-GENERAL'S OFFICE,
Washington, October 31, 1898.

SIR: I have the honor to submit the annual report of the operations of the Quartermaster's Department for the fiscal year ended June 30, 1898. This report will also show briefly the operations of this Department from July 1, 1898, to the close of hostilities with Spain:

FINANCIAL STATEMENT.

By acts of Congress approved March 2 and June 4, 1897, there was appropriated for the regular service of the Quartermaster's Department for the fiscal year ended June 30, 1898, the sum of	\$7, 711, 367. 75
During the fiscal year there was deposited to the credit of appropriations, 1897-98, amounts received from sales to officers, etc., the sum of	477, 890. 37
Making a total of	8, 189, 258. 12
Of this amount there was remitted to disbursing officers. \$7, 839, 858. 06	
There was paid out on account of settlements made at Treasury of claims and accounts	9, 245. 35
	7, 849, 103. 41
Leaving a balance available for payment of outstanding obligations incurred, or fulfillment of contracts properly entered into within the fiscal year, of.....	340, 154. 71
By act approved May 4, 1898, there was appropriated for deficiencies January 1, 1899, for regular supplies, incidental expenses, cavalry and artillery horses, barracks and quarters, transportation, and clothing, camp and garrison equipage	19, 550, 000. 00
There was placed to the credit of this appropriation from sales to officers, etc	950. 86
	19, 550, 950. 86
Of this amount there was remitted to disbursing officers.....	11, 012, 554. 18
Leaving a balance available until January 1, 1899.....	8, 538, 396. 68
On the 1st of July, 1897, there was on hand from regular appropriations for the service of the Quartermaster's Department pertaining to the fiscal year ended June 30, 1897	1, 837, 845. 26
And from appropriations pertaining to previous fiscal years the sum of	883, 746. 43
Making a total balance on hand from all appropriations July 1, 1897	2, 721, 591. 69
For specific purposes there was appropriated during the fiscal year ended June 30, 1898	400, 187. 15
During the year there was deposited and transferred to credit of appropriations other than those of 1897-98, shown above, the sum of	212, 715. 71
Making a total of.....	3, 334, 494. 55
	379

Of said amount there was remitted to disbursing officers the sum of	\$906, 208. 58	
There was paid out on account of Treasury settlements and transferred the sum of	587, 231. 82	
There was carried to surplus fund the sum of	859, 153. 66	
		<hr/>
		\$2, 352, 594. 06
Leaving a balance of		981, 900. 49

Of the \$200,000 appropriated by act approved December 18, 1897, for relief of people in the mining region of Alaska, there has been drawn by this office the sum of \$72,000.

Of the \$50,000,000 appropriated by act of March 9, 1898, for national defense, the sum of \$1,500,526.95 was allotted to this Department to June 30, 1898, of which the sum of \$1,497,397.67 has been remitted to officers and transferred, leaving a balance on hand on June 30, 1898, of \$3,129.28. Since the close of the fiscal year, June 30, 1898, an additional sum of \$2,295,000 was allotted to this Department from this appropriation; the sum of \$919,106.97 was received by credit deposits; and from the total on hand the sum of \$915,084.35 was remitted to disbursing officers, leaving a balance on hand September 8, 1898, of \$2,302,151.92.

Under act approved July 7, 1898 (deficiency), Congress appropriated for the service of this Department, under the various heads of appropriations, the sum of \$103,200,000.

From July 1 to August 15, 1898, the sum of \$20,825,212.35 was remitted to disbursing officers by this Department from the appropriations made therefor under the various headings.

DUTIES OF THE QUARTERMASTER'S DEPARTMENT.

Under existing laws the Quartermaster's Department, under the direction of the Secretary of War, provides the Army with military stores and supplies requisite for its use, such as clothing and equipage, tents, band instruments, tableware and mess furniture, equipments for post bakeries, fuel, forage, stationery, lumber, straw for bedding for men and animals, all materials for camp and for shelter for troops and stores, furniture for barracks, such as bunks, benches, chairs, tables, lockers, heating and cooking stoves for use in public barracks and quarters, tools for mechanics and laborers in the Quartermaster's Department, furniture, text-books, papers, and equipment for post schools, reading matter for post libraries, wagons, ambulances, carts, saddles, harness, water supply, sewerage, plumbing, illuminating supplies, and heating for all military posts and buildings.

The Department is also charged with the duty of transporting, by land and water, troops, munitions of war, equipments, and all articles of military supplies from the place of purchase to the several armies, garrisons, posts, and recruiting places.

Under act of Congress amending section 1661, Revised Statutes, for arming and equipping the militia, this Department supplies quartermaster stores, clothing, and equipage to the militia of the several States and Territories, and transports the same to said States and Territories. It also furnishes transportation for ordnance and ordnance stores issued by the United States to the militia of the several States and Territories. It also transports the property for other Executive Departments on requisitions, payments therefor being made by the respective Depart-

ments to the carriers upon accounts forwarded through the Quartermaster-General's Office for that purpose.

This Department prepares the necessary plans and constructs all buildings at military posts, such as barracks, quarters, storehouses, hospitals, etc., builds wharves, constructs and repairs roads for military purposes, builds all necessary military bridges, provides, by hire or purchase, grounds for military encampments and buildings; contracts for all horses for cavalry, artillery, and for the Indian scouts, and for such infantry and members of the Hospital Corps in the field campaigns as may be required to be mounted; pays for all incidental expenses of the military service which are not provided by other corps.

The care and maintenance of national cemeteries is an additional duty of this Department. It also provides suitable headstones to mark the graves of all soldiers, sailors, or marines who served during the late war, including those who have been buried in private cemeteries and other burial places.

Section 1139, Revised Statutes, makes it the duty of the Quartermaster-General, under the direction of the Secretary of War, to prescribe and enforce a system of accountability for all quartermaster's supplies furnished the Army, its officers, seamen, and marines.

For eight months of the last fiscal year the business of this Department was conducted under the usual and ordinary conditions incident to a country at peace with all the world. It was only after Congress provided, by act approved March 9, 1898, \$50,000,000 for "the national defense" that any steps could be taken by this Department in the way of preparation for war should it come.

CLOTHING AND EQUIPAGE SUPPLIES.

The matter of clothing and equipage for the Army was one of the most important subjects that engaged the attention of this Department during the closing three months of the last fiscal year.

On April 1, 1898, this Department was amply provided with all necessary clothing and equipage supplies for the then existing small Army of 25,000 men, but on the 23d of that month, when the first call for volunteers was made, the problem of clothing and equipping an army of 125,000 men presented itself. Four days later, on April 26, Congress increased the Regular Army to 61,184 men, and a month later, on May 25, the second call for 75,000 volunteers was issued. To this was added 10 regiments of immunes, 3 regiments of cavalry, 3 regiments of engineers, and 1 of the Signal Corps, making a grand total of about 275,000 soldiers called into active service in a few weeks.

To properly clothe and equip this large number of soldiers for active and immediate operations in the field was a problem of vast proportions. This Department set upon this task without a moment's delay, every known expedient was at once resorted to with a view to obtaining the necessary quartermaster supplies. Many difficulties were in the way. Contracts were promptly entered into for all the articles of clothing and camp equipage for which there would be an early demand, great care being taken to prevent the supply of articles of inferior quality. The kerseys and flannels of standard quality used for making army blouses and trousers were not to be had in the market, and it was necessary to have them manufactured. In the meantime the Department, as far as possible, endeavored to procure articles conforming as nearly as practicable to existing standards, but had to resort, at

first, to some extent to the purchase of dark-blue trousers so that the men might be quickly supplied.

The prompt supply of the large number of tents required by the increased force was a problem of difficult solution and called for extraordinary endeavors.

At the beginning of the war there was but little cotton duck to be found in this country entirely suitable for military purposes, the supply having been depleted by the large demands for tentage for the Klondike region and the extensive purchases by the Navy Department. Energetic efforts were promptly made in every locality, East and West, wherever it was found possible to obtain the material and labor skilled to manufacture tents. Through the courtesy of the Post-Office Department the force of the mail bag repair shop was placed at the disposal of this Department, which was of great assistance.

With all the perplexing difficulties confronting the Department in the matter of clothing and equipage supplies, it is remarked that in the short period of three and one-half months an army of 275,000 men was equipped with such supplies, and it is further remarked that the army in Cuba, consisting of 16,000 men, leaving their tentage behind, arrived at their camp at Montauk Point, New York, and found a complete new outfit of tents and clothing ready there for them.

The detailed statements accompanying the report of the officer on duty in this office specially charged with this branch of the work, will show the various places at which the purchases and contracts for clothing and equipage were made, and that it was the endeavor of this Department to reach every principal locality that could contribute towards meeting the requirements of the service, taking into consideration the quality and kind of supplies required.

The following are the principal articles that were manufactured at the Philadelphia, Washington, Jeffersonville, St. Louis, and San Francisco depots, and for the purpose of comparison the data is given in two different periods, viz, from July 1, 1897, to April 30, 1898, covering ten months prior to the commencement of the war, and from May 1, 1898, to August 15, 1898, the three and one-half months embracing the period of hostilities.

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
Dress coats, all kinds.....	1,946	624
Overcoats, kersey, made and unmade.....	6,741	18,694
Blouses, made and unmade.....	17,255	116,543
Coats, canvas fatigue.....	8,143	18,620
Trousers:		
Kersey, foot, made and unmade.....	26,238	84,559
Kersey, mounted, made and unmade.....	7,903	17,888
Canvas, fatigue.....	12,918	17,947
Overalls.....	1,446	5,147
Stable, frocks.....	3,115	-----
Shirts, dark blue flannel.....	29,046	73,577
Drawers, canton flannel.....	51,588	103,092
Tents:		
Conical wall.....	328	24
Hospital.....	207	426
Wall.....	569	668
Shelter.....	6,351	197,502
Common.....	862	4,923

The following statement shows the principal articles that were purchased or contracted for during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
Blankets, wool	22, 000	546, 838
Blouses		274, 232
Caps, forage	77, 000	230, 000
Canvas fatigue coats		81, 601
Canvas fatigue trousers	pairs	81, 590
Drawers, canton flannel	do.	50, 000
Drawers, summer	do.	1, 056, 990
Field and summer uniforms	43, 340	153, 169
Hats, campaign	18, 040	476, 705
Leggings	11, 000	588, 800
Overcoats		129, 000
Ponchos, rubber	32, 925	325, 385
Shirts, dark blue flannel		548, 634
Shoes:		
Barrack	pairs	76, 098
Calfskin	do.	782, 303
Stockings:		
Cotton	do.	1, 996, 699
Woolen	do.	150, 942
Trousers:		
Foot	do.	387, 756
Mounted	do.	33, 000
Duck	do.	115, 000
Undershirts:		
Cotton	40, 000	1, 312, 656
Woolen		44, 356
Tents:		
Common		43, 077
Conical wall		716
Hospital		5, 920
Shelter, halves		174, 877
Wall		7, 982
Duck, tent, all kinds	yards	1, 494, 828
Flannel:		
Blouse	do.	833, 679
Canton	do.	1, 008, 511
Shirting	do.	675, 620
Kersey, sky-blue	do.	577, 208

The following statement shows the principal issues made during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING.		
Blankets, wool	27, 559	289, 763
Blouses	85, 624	302, 126
Caps, forage	81, 784	17, 804
Canvas fatigue coats	84, 775	59, 089
Canvas fatigue trousers	pairs	59, 693
Campaign hats	39, 265	496, 196
Drawers:		
Canton flannel	pairs	104, 598
Summer	do.	609, 347
Leggings	do.	397, 670
Overcoats	17, 016	15, 383
Rubber ponchos	6, 822	299, 497
Dark-blue flannel shirts	36, 699	553, 672
Shoes:		
Barrack	pairs	60, 998
Calfskin	do.	516, 436
Stockings:		
Cotton	249, 746	1, 174, 872
Woolen	78, 959	51, 478
Trousers:		
Foot	do.	321, 519
Mounted	do.	46, 636

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING—continued.		
Undershirts:		
Cotton.....	56, 152	875, 672
Woolen.....	29, 227	87, 691
EQUIPAGE.		
Tents:		
Common.....	1, 971	44, 676
Conical wall.....	486	1, 212
Hospital.....	144	4, 332
Shelter, halves.....	8, 834	332, 599
Wall.....	923	7, 736
MATERIALS.		
Flannel:		
Blouse.....yards..	31, 241	205, 128
Canton.....do..	150, 738	212, 181
Shirting.....do..	63, 556	144, 340
Duck, cotton, for tents, all kinds.....do..	170, 568	1, 108, 198
Kersey, sky-blue, 22-ounce.....do..	104, 244	194, 981

A comparison of the figures given in the above statements will afford some idea as to what this Department has accomplished in the short period of three and a half months in the matter of clothing and equipage alone.

In this connection it is proper to state that many of the States which contributed toward filling the quota of volunteers of the first call held their men in camps before they were mustered into the United States service, and when turned over to the General Government they were in many cases without proper clothing; this was especially the case in regard to underclothing and shoes.

Congress provided for this branch of the service, for the last fiscal year, the sum of \$1,050,000, and a further sum of \$10,000,000 by act approved May 4, 1898. To this was added the sum of \$189,248.37 for reimbursements on account of issues to the militia, and the sum of \$95,125.61 for collections by the Pay Department, etc., making a total of \$11,334,373.98. Of this amount, the sum of \$5,530,612.06 was paid out during the fiscal year, leaving a balance on hand on June 30, 1898, of \$5,803,761.92; to this should be added the sum of \$26,000,000 appropriated by act approved July 7, 1898, making the total amount available \$31,803,761.92. Of this amount, the sum of \$7,229,997.07 was required on August 15 last to pay all expenditures on account of clothing and equipage by this Department up to that date.

The issues to the militia of the several States and Territories during the past fiscal year amounted to the sum of \$189,870.72, which includes \$474.02 from appropriation "Regular supplies" and \$284.85 from "Army transportation."

The sum of \$8,234 was expended during the fiscal year from the appropriations of the Quartermaster's Department for the maintenance of the Indian prisoners of war held captive at Fort Sill, Okla. These prisoners consist of 298 Apache Indians—68 men, 105 women, 70 boys, and 55 girls.

SHOES.

The subject of improving the army shoe has been under consideration for some years. A shoe made of lighter calfskin, upon lasts conforming more closely to the anatomy of the human foot, was adopted last January. This shoe is of excellent quality and make, hand sewed. Shoes now procured under contracts made within the past few

months conform to the new pattern, but the soles are sewed on by the most approved welt machine. The advisability of substituting the latter mode of fastening the soles is under consideration.

The shoes procured at the outbreak of hostilities, and which were found to be essential for the immediate equipment of the organizations then being rapidly mustered into service, did not conform altogether to the newly adopted army shoe. The urgency of the situation made it necessary to procure a large number of shoes at once, and as the newly adopted army shoe could not be procured in sufficient quantity, it was found absolutely necessary to purchase such shoes as could be had in the market, conforming approximately to the standard army shoe in pattern and quality. As a rule these shoes were found good and serviceable.

CLOTHING OF LIGHTER TEXTURE FOR SOUTHERN AND TROPICAL COUNTRIES.

To meet calls from the army in the South for garments made of cotton fabric this Department procured a supply made from both twilled and plain duck. These were issued to troops in Cuba, Porto Rico, and as far as practicable to various organizations in camps in this country.

BAND INSTRUMENTS.

Some difficulty was experienced in supplying instruments to the many new military bands of the increased Army. As far as possible they were procured of the best domestic production obtainable. It was impracticable to furnish all the regiments before the cessation of hostilities.

GRATUITOUS ISSUES.

By direction of the Secretary of War the clothing of part of the troops returning from Cuba was ordered to be destroyed to prevent contagion, and the issue to each of the men, free of charge, of another suit in lieu of the one destroyed was authorized. Similar issue was also made to the men in hospitals whose clothing was destroyed for the same reason.

MEANS OF TRANSPORTATION.

The following statement shows the number and cost of public animals, wagons, and harness purchased from July 1, 1897, to March 31, 1898, covering the nine months period to the commencement of the war, and from April 1, to August 31, 1898, covering the war period:

PUBLIC ANIMALS.

	Peace period, from July 1, 1897, to March 31, 1898 (nine months).			War period, from Apr. 1, 1898, to Aug. 31, 1898 (five months).		
	No.	Total cost.	Average cost.	No.	Total cost.	Average cost.
Cavalry horses	668	\$84,274.50	\$126.15	10,743	\$1,078,813.82	\$100.42
Artillery horses	118	16,200.00	137.79	2,551	334,807.11	130.85
Draft horses	39	5,776.50	148.11	1,137	142,561.75	125.38
Riding horses	1	123.75	123.75	* 2,115	164,330.00	77.70
Bell horses				32	11,595.00	49.84
Pack horses				40	1,200.00	30.00
Draft mules	215	21,466.48	99.84	17,515	1,927,608.40	110.05
Pack mules	38	2,771.60	72.93	2,667	231,774.00	83.15
Totals	1,079	130,672.83	.....	36,800	3,871,690.08	.....

* Includes 1,500 little horses for Cuban service.

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING -- continued.		
Undershirts:		
Cotton.....	56, 153	875, 673
Woolen.....	29, 327	87, 801
EQUIPAGE.		
Tents:		
Common.....	1, 971	44, 676
Conical wall.....	496	1, 313
Hospital.....	144	4, 333
Shelter, halves.....	8, 534	332, 509
Wall.....	923	7, 736
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Blouse.....yards..	81, 241	206, 128
Canton.....do..	150, 738	312, 181
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The detailed statements accompanying the report of the officer on duty in this office specially charged with this branch of the work, will show the various places at which the purchases and contracts for clothing and equipage were made, and that it was the endeavor of this Department to reach every principal locality that could contribute towards meeting the requirements of the service, taking into consideration the quality and kind of supplies required.

The following are the principal articles that were manufactured at the Philadelphia, Washington, Jeffersonville, St. Louis, and San Francisco depots, and for the purpose of comparison the data is given in two different periods, viz, from July 1, 1897, to April 30, 1898, 10 months peace period, and from May 1, 1898, to August 15, 1898, the three and one-half months embracing the period of hostilities.

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
Dress coats, all kinds.....	1,946	634
Overcoats, kersey, made and unmade.....	6,741	18,694
Blouses, made and unmade.....	17,255	116,543
Coats, canvas fatigue.....	8,143	18,620
Trousers:		
Kersey, foot, made and unmade.....	26,238	84,559
Kersey, mounted, made and unmade.....	7,903	17,888
Canvas, fatigue.....	12,918	17,947
Overalls.....	1,446	5,147
Stable, frocks.....	3,115	-----
Shirts, dark blue flannel.....	29,046	73,577
Drawers, canton flannel.....	51,588	103,692
Tents:		
Conical wall.....	328	24
Hospital.....	207	426
Wall.....	589	668
Shelter.....	6,351	197,502
Common.....	862	4,923

The following statement shows the principal articles that were purchased or contracted for during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
Blankets, wool.....	22,000	546,838
Blouses.....		274,232
Caps, forage.....	77,000	230,000
Canvas fatigue coats.....		81,601
Canvas fatigue trousers..... pairs..		81,590
Drawers, cotton flannel..... do..		50,000
Drawers, summer..... do..	43,340	1,056,990
Field and summer uniforms.....		153,169
Hats, campaign.....	18,040	476,705
Leggings.....	11,000	588,800
Overcoats.....		129,000
Ponchos, rubber.....	32,925	325,885
Shirts, dark blue flannel.....		548,634
Shoes:		
Barrack..... pairs..		76,068
Calfskin..... do..	27,950	782,803
Stockings:		
Cotton..... do..		1,996,099
Woolen..... do..	40,008	150,942
Trousers:		
Foot..... do..		387,756
Mounted..... do..		23,000
Duck..... do..		115,000
Undershirts:		
Cotton.....	40,000	1,312,656
Woolen.....		44,356
Tents:		
Common.....		42,077
Conical wall.....		716
Hospital.....		5,920
Shelter, halves.....		174,877
Wall.....		7,982
Duck, tent, all kinds..... yards..	382,354	1,494,828
Flannel:		
Blouse..... do..	40,000	333,679
Canton..... do..		1,008,511
Shirting..... do..	23,114	675,620
Kersey, sky-blue..... do..	68,754	577,208

The following statement shows the principal issues made during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING.		
Blankets, wool.....	27,550	289,762
Blouses.....	35,624	302,126
Caps, forage.....	81,784	17,304
Canvas fatigue coats.....	34,775	59,099
Canvas fatigue trousers..... pairs..	37,390	59,693
Campaign hats.....	39,265	496,196
Drawers:		
Cotton flannel..... pairs..	65,804	104,598
Summer..... do..	10,502	609,347
Leggings..... do..	36,439	397,670
Overcoats.....	17,016	15,383
Rubber ponchos.....	6,822	299,497
Dark-blue flannel shirts.....	36,699	553,672
Shoes:		
Barrack..... pairs..	14,129	60,908
Calfskin..... do..	57,017	516,436
Stockings:		
Cotton..... do..	249,746	1,174,872
Woolen..... do..	78,959	51,473
Trousers:		
Foot..... do..	59,466	321,519
Mounted..... do..	19,117	46,626

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING--continued.		
Undershirts:		
Cotton.....	54, 153	575, 673
Woolen.....	29, 327	57, 591
EQUIPAGE.		
Tents:		
Common.....	1, 971	44, 676
Conical wall.....	496	1, 213
Hospital.....	144	4, 333
Shelter, halves.....	8, 834	332, 569
Wall.....	923	7, 736
MATERIALS.		
Flannel:		
Blouse.....yards..	81, 241	205, 128
Caulon.....do.....	150, 726	312, 181
Shirting.....do.....	63, 556	144, 340
Duck, cotton, for tents, all kinds.....do.....	170, 598	1, 104, 198
Kersey, sky-blue, 22-ounce.....do.....	104, 244	194, 981

A comparison of the figures given in the above statements will afford some idea as to what this Department has accomplished in the short period of three and a half months in the matter of clothing and equipage alone.

In this connection it is proper to state that many of the States which contributed toward filling the quota of volunteers of the first call held their men in camps before they were mustered into the United States service, and when turned over to the General Government they were in many cases without proper clothing; this was especially the case in regard to underclothing and shoes.

Congress provided for this branch of the service, for the last fiscal year, the sum of \$1,050,000, and a further sum of \$10,000,000 by act approved May 4, 1898. To this was added the sum of \$189,248.37 for reimbursements on account of issues to the militia, and the sum of \$95,125.61 for collections by the Pay Department, etc., making a total of \$11,334,373.98. Of this amount, the sum of \$5,530,612.06 was paid out during the fiscal year, leaving a balance on hand on June 30, 1898, of \$5,803,761.92; to this should be added the sum of \$26,000,000 appropriated by act approved July 7, 1898, making the total amount available \$31,803,761.92. Of this amount, the sum of \$7,229,997.07 was required on August 15 last to pay all expenditures on account of clothing and equipage by this Department up to that date.

The issues to the militia of the several States and Territories during the past fiscal year amounted to the sum of \$189,870.72, which includes \$474.02 from appropriation "Regular supplies" and \$284.85 from "Army transportation."

The sum of \$8,234 was expended during the fiscal year from the appropriations of the Quartermaster's Department for the maintenance of the Indian prisoners of war held captive at Fort Sill, Okla. These prisoners consist of 298 Apache Indians—68 men, 105 women, 70 boys, and 55 girls.

SHOES.

The subject of improving the army shoe has been under consideration for some years. A shoe made of lighter calfskin, upon lasts conforming more closely to the anatomy of the human foot, was adopted last January. This shoe is of excellent quality and make, hand sewed. The shoes now procured under contracts made within the past few

months conform to the new pattern, but the soles are sewed on by the most approved welt machine. The advisability of substituting the latter mode of fastening the soles is under consideration.

The shoes procured at the outbreak of hostilities, and which were found to be essential for the immediate equipment of the organizations then being rapidly mustered into service, did not conform altogether to the newly adopted army shoe. The urgency of the situation made it necessary to procure a large number of shoes at once, and as the newly adopted army shoe could not be procured in sufficient quantity, it was found absolutely necessary to purchase such shoes as could be had in the market, conforming approximately to the standard army shoe in pattern and quality. As a rule these shoes were found good and serviceable.

CLOTHING OF LIGHTER TEXTURE FOR SOUTHERN AND TROPICAL COUNTRIES.

To meet calls from the army in the South for garments made of cotton fabric this Department procured a supply made from both twilled and plain duck. These were issued to troops in Cuba, Porto Rico, and as far as practicable to various organizations in camps in this country.

BAND INSTRUMENTS.

Some difficulty was experienced in supplying instruments to the many new military bands of the increased Army. As far as possible they were procured of the best domestic production obtainable. It was impracticable to furnish all the regiments before the cessation of hostilities.

GRATUITOUS ISSUES.

By direction of the Secretary of War the clothing of part of the troops returning from Cuba was ordered to be destroyed to prevent contagion, and the issue to each of the men, free of charge, of another suit in lieu of the one destroyed was authorized. Similar issue was also made to the men in hospitals whose clothing was destroyed for the same reason.

MEANS OF TRANSPORTATION.

The following statement shows the number and cost of public animals, wagons, and harness purchased from July 1, 1897, to March 31, 1898, covering the nine months period to the commencement of the war, and from April 1, to August 31, 1898, covering the war period:

PUBLIC ANIMALS.

	Peace period, from July 1, 1897, to March 31, 1898 (nine months).			War period, from Apr. 1, 1898, to Aug. 31, 1898 (five months).		
	No.	Total cost.	Average cost.	No.	Total cost.	Average cost.
Cavalry horses	668	\$84,274.50	\$126.15	10,743	\$1,078,813.82	\$100.42
Artillery horses	118	16,260.00	137.79	2,551	334,807.11	130.85
Draft horses	39	5,776.50	148.11	1,137	142,561.75	125.38
Riding horses	1	123.75	123.75	* 2,115	164,330.00	77.70
Bell horses				32	11,595.00	49.84
Pack horses				40	1,200.00	30.00
Draft mules	215	21,466.48	99.84	17,515	1,927,608.40	110.05
Pack mules	38	2,771.60	72.93	2,667	221,774.00	83.15
Totals	1,079	130,672.83	.....	36,800	3,871,690.08	.....

* Includes 1,500 little horses for Cuban service.

WAGONS AND HARNESS.

	Peace period, from July 1, 1897, to March 31, 1898 (nine months).			War period, from Apr., 1, 1898, to Aug. 31, 1898 (five months).		
	No.	Total cost.	Average cost.	No.	Total cost.	Average cost.
Army wagons				604	\$61,467.00	\$101.77
Escort wagons				109	8,584.75	78.76
Farm wagons				3,605	238,942.75	66.28
Spring wagons	8	\$2,295.00	\$286.87	70	18,218.00	260.26
Wagonettes	4	944.00	236.00	8	1,540.60	192.58
Ambulances:						
Rucker				500	122,950.00	245.90
Red Cross				50	13,259.50	224.74
Miscellaneous wagons				224	13,148.50	58.70
Total	12	3,239.00		5,179	478,111.10	
Harness, sets, single	30	900.00	30.00	28,012	358,449.18	

From April 1, 1898, to August 31, 1898, there were purchased 5,130 field ranges, at a cost of \$106,742; 150 bread ovens, costing \$20,540; 5,434 field desks, at a cost of \$38,471.80; and 4,580 paulins, at a cost of \$87,644.20.

Coal for use of transport vessels was contracted for as follows:

	Tons.
Tampa, Fla	3,306
Fernandina, Fla	5,547
Santiago, Cuba	3,978
Ponce, Porto Rico	6,422
Port Tampa, Fla	19,225
Manila, Philippine Islands	16,000
Honolulu	28,600
Total	83,078

DIVISION OF TRANSPORTATION.

Under the order of the honorable the Secretary of War, dated July 18, 1898, the duties of this division consist mainly of rail and water transportation.

During the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of materials.

RAIL TRANSPORTATION.

[Since April 1, 1898.]

The orders for the movement of the regular troops to Chickamauga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898, and were addressed to the several department commanders. They designated the point of destination and the time at which the movement was desired to take place.

The chief quartermasters of the respective departments were immediately charged by the Quartermaster-General with all the necessary transportation arrangements. The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. In no case was any delay reported to this office, nor is any known to have occurred. These troops were moved with the most satisfactory dispatch and an entire absence of accident.

Upon the receipt by the Quartermaster-General from the War Department of a list showing the assignment of the volunteer forces to the several national encampments of mobilization, the proper officers of

the Quartermaster's Department throughout the country were directed, in anticipation of the required movement, to examine the list supplied by the War Department and familiarize themselves with every detail of the subject; to consult the proper railroad officials interested in the transportation of these troops, and determine in advance as far as practicable all preliminaries that could be settled before the actual movement of the troops occurred, such as determining routes of travel, rates, etc., for each movement, so that when the troops should actually move no possible delay should occur, and they might be moved with comfort and celerity.

The officers of the Department acted in all these matters with commendable zeal and energy, and in many cases agreed upon flat rates to govern all such shipments, which were most advantageous to the Government as a matter of economy.

On May 13 the Adjutant-General sent to the Quartermaster-General his first orders for the movement of volunteers—a separate order for each organization—designating the point of destination. Instructions were immediately wired, in all cases of even date with the order of the Adjutant General, to the quartermasters most convenient to move the troops. At the same time the commander of the organization was wired as to the officer charged with the movement, and the chief quartermaster at the national encampment was also informed by telegraph that the shipping officer would wire him the date of departure and probable time of arrival of each organization. Under these instructions the volunteer troops have gone to destination with promptness and remarkable freedom from accident or delay en route.

A statement has been prepared in this office showing, as far as possible, the shipments of the various volunteer organizations, with all detailed information as to number of officers and men, dates of movements, cost of the service, passenger and freight, with the rates at which each movement has been made. This report is voluminous, and the conclusions or summary, from the information obtained to date, only can be stated in the present report. Moreover, it must remain for some time yet incomplete until the accounts for all these services are rendered by the many railroads of the country, critically examined and paid. It will, when completed, present in tabular form a correct and detailed statement of all railroad transportation connected with the movements of troops of the Regular and Volunteer Army during the war with Spain.

From April 1, 1898, to the breaking up of Camp Wikoff the aggregate movement of troops by rail amounted to 17,863 officers and 435,569 men.

Low rates were secured by the Quartermaster's Department in making these movements, generally not exceeding $1\frac{1}{2}$ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit was provided under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of 10 tourist sleepers, 2 kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

Under circulars of the Treasury Department, No. 187, November 11, 1897, and No. 83 of May 17, 1898, the Union Pacific and Kansas Pacific railroads, having been sold, ceased to be bond-aided railroads from November 1, 1897, and March 31, 1898, respectively.

WATER TRANSPORTATION.

The sum of \$90,757.34 was expended during the fiscal year to maintain, including repairs, the 11 vessels owned by this Department, which is exclusive of the transports chartered and purchased for the prosecution of the war with Spain.

Anticipating the possible needs of the Quartermaster's Department for ocean transportation for the movement of troops and supplies to Cuba, early action was taken by this office communicating with the various American steamship companies conducting the ocean traffic on the Atlantic and Gulf coasts, to ascertain what vessels were available for charter for that purpose, and an experienced officer of the Department was sent to New York City to consult with the companies and to inspect and report upon the suitability of the vessels offered for charter. Similar measures were taken at all other points on the Atlantic and Gulf coasts where vessels were offered for charter. Whenever practicable an officer of the Navy was detailed by that Department to assist in the inspection.

These precautionary measures enabled this Department to select those vessels best adapted for the service for which they were specially required.

From the declaration of war to June 30, 1898, this Department chartered for service on the Atlantic and Gulf waters 43 vessels, with a total tonnage of 104,201, and a carrying capacity of 1,287 officers, 22,335 men with their arms, ammunition, equipment, medical and subsistence supplies, and 6,746 animals. There were also chartered 4 water boats, with a total capacity of 820,000 gallons, 3 lighters, 2 tugs, and 1 barge; also 2 barges purchased.

In addition to the above there were chartered—for the Signal Service of the Army, the steamship *Adria*, used as a cable boat; the steamship *Fanita* for the Secret Service, and the steamer *Gretchen* for inspection purposes.

The operations of the Navy in the harbor at Manila required that provision be made for the transportation of troops and supplies to the Philippines.

Some difficulty was experienced in securing transport ships on the Pacific coast, not because the steamship companies were unwilling to charter their vessels to the Government, but from the fact that their ships were engaged in their regular traffic across the Pacific, and were not available until their arrival at their home ports on the Pacific coast.

In order that sufficient means of transportation might be secured, it became necessary to ask Congress to grant American registry to some available ships which were under foreign registry.

Fourteen ships were chartered to June 30, 1898, on the Pacific coast, having a total tonnage of 41,152 and carrying capacity of 629 officers and 13,059 men, with their complete outfit of camp and garrison equipment, arms, ammunition, medical and subsistence stores for a voyage of over 7,000 miles.

The combined fleets on the Atlantic and Pacific coasts at the close of the fiscal year consisted of 69 vessels of various classes, with a total tonnage of 145,353 tons and carrying capacity of over 37,000 men.

To convert the vessels composing this fleet from their ordinary uses as freight vessels into safe and commodious transport ships required considerable alteration. Sleeping accommodations for the men and stalls for the animals had to be constructed; largely increased water capacity had to be provided by the construction of extra tanks and the supply of barrels and casks, and provision made for pure-air ventila-

tion. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship.

Special care was given to the fitting out of the transports on the Pacific coast to provide the troops with comfort, cleanliness, protection to health, and the proper means for cooking during the long voyage to Manila. For these purposes galley facilities, lavatories, and closets were constructed in all these vessels.

The total expenditures for fitting up these vessels (as far as reported), to June 30, 1898, amounted to \$186,632.68, which includes the sum of \$7,694.30 for fitting up the steamship *City of Peking*, which was chartered by the Navy Department and turned over to the War Department for transportation of the Army.

Under the terms of the charters this Department furnished all coal for running these vessels, and the water required for boilers and drinking purposes. The supply of coal for this purpose has been purchased as far as possible by contract at lowest obtainable rates for delivery to the various ports where needed to supply these ships.

The sum expended for supply of water amounted to \$21,000. The payments for services of the vessels under charter to June 30, 1898, were as follows:

On Atlantic coast and Gulf waters	\$1,007,952.50
On Pacific coast	319,764.17
Total	1,327,716.67

To provide for the transportation of the sick and wounded, this Department purchased from the Maine Steamship Company the steamship *John Englis* for the sum of \$450,000. This ship was fitted up at considerable expense as a hospital ship, and every appliance provided for the care, comfort, and treatment of the sick and wounded. The interior of the ship was remodeled and provided with an electric plant for lighting and purifying. Sterilizing and laundry plants and two steam launches were also provided. The expenditures for refitting amounted to \$136,851.11. This hospital ship was renamed *Relief*, and is under the control of the Medical Department of the Army, with an officer of that Department detailed to command the vessel.

Since the close of the fiscal year the steamship *Missouri*, used by the Medical Department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's Department at an expenditure of \$85,854.

Since the 1st of July, 1898, there have been chartered on the Atlantic coast four vessels, viz: Steamship *Wanderer*, steamship *La Grande Duchesse*, steamship *Tarpon*, and steamship *Ute*. These vessels were made auxiliary to the fleet of transports for transportation of troops and supplies to Cuba and Porto Rico, and increased the tonnage to 111,099 tons and the carrying capacity to over 25,000 men.

To meet the needs for light-draft vessels for towing and lighterage at Santiago, two fine ocean tugs were chartered early in July, 1898, the *Underwriter* and the *Gladisfen*. There were also chartered for service in the movement of troops and supplies at Montauk, after the return of General Shafter's army from Cuba, one large steamship for the transportation of sick and wounded, and five small steamers, three barges, and two flatboats. These vessels, since the abandonment of Camp Wikoff as a camp, have been dispensed with.

On the Pacific coast four additional vessels were chartered for the transportation of troops and supplies to Manila, viz: *City of Rio de Janeiro*, *Pennsylvania*, *St. Paul*, and *Tacoma*.

There were also purchased for the service of the Army on the Pacific Ocean two large, commodious steamships, the *Scandia* and the *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean. These vessels have a tonnage of 4,243 and 5,000 tons, respectively, and with the four chartered since July 1, 1898, increased the total tonnage of the fleet operating on the Pacific Ocean to 61,287 and the carrying capacity to over 20,000 men.

The chartered ships, steamship *Australia*, steamship *City of Sidney*, and the steamship *Colon*, which formed the first expedition of the Army to Manila, have returned to San Francisco and their charters have been canceled.

The carrying capacity of the chartered steamships employed in connection with General Shafter's army for the invasion of Cuba was not found adequate to promptly transport the number of troops, in addition to that army, required for Cuba and Porto Rico, and it therefore became necessary to increase the number of transport vessels with larger carrying capacity for men and animals with bilge keels to prevent rolling, and thus make the ships more comfortable for stock.

Congress being averse to admitting foreign ships to American registry, the Secretary of War decided to direct the purchase of vessels and have them fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies. Fourteen large steamships were purchased and fitted up for carrying men, animals, freight, etc. The following is a list of these vessels:

Name of vessel.	Tonnage.	Cost.	Class.	Carrying capacity.		
				Officers.	Men.	Animals.
Panama, No. 1.....	2,085	\$41,000	Freighter....	10	400	.....
Port Victor, No. 2.....	2,792	175,000	.....do.....	25	400	.....
Rita, No. 3.....	2,194	125,000	.....do.....	15	700	.....
Mohawk, No. 20.....	5,658	660,000	Combination..	80	1,000	1,000
Mobile, No. 21.....	5,780	660,000	.....do.....	80	1,000	1,000
Massachusetts, No. 22.....	5,673	660,000	.....do.....	80	1,000	1,000
Manitoba, No. 23.....	5,673	660,000	.....do.....	80	1,000	1,000
Minnewaska, No. 24.....	5,796	660,000	.....do.....	100	1,200	1,000
Mississippi, No. 25.....	3,732	350,000	.....do.....	40	800	800
Michigan, No. 26.....	3,722	350,000	.....do.....	40	800	800
Roumanian, No. 27.....	4,126	240,000	.....do.....	45	1,100	50
Obdam, No. 30.....	3,656	250,000	Troop ship..	50	1,300	100
Berlin, No. 31.....	5,641	400,000	.....do.....	75	2,000	.....
Chester, No. 32.....	4,770	200,000	.....do.....	.....	.....	.....
Total	61,298	5,431,000	.....	720	12,700	6,750

Eight of these vessels were provided with refrigerators for the transportation of fresh meat, 7 of them having a capacity of 1,000 tons each. Two, the *Panama* and the *Rita*, were captured by the Navy and were purchased by this Department after having been condemned as prizes by the proper courts and offered for sale.

All of these were merchant vessels and were temporarily fitted up as army transports to meet the urgent demands of the service, for which purpose an expenditure of \$178,018.37 was made.

It is the intention to overhaul all of these 14 vessels and refit them for the army-transport service. Two of them, the *Mohawk* and the *Mobile*, are now in course of refitting. Specifications for refitting the others are in preparation and the work will be commenced as soon as they can be spared from the service upon which they are now engaged.

When the vessels are fitted up in the manner designed the Department will possess a fleet of the finest transport vessels afloat and be thoroughly equipped to meet every demand upon it for ocean transportation.

TRANSPORTATION OF ARMY TO CUBA.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for a voyage to the vicinity of Havana, distant about 400 miles; 2 decked barges were also provided by the Engineer Department. One of the steam lighters, the tug, and a decked barge failed to reach Cuba.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than about 16,000 men with their 2,295 animals, equipments, ammunition, subsistence, and medical supplies on a voyage of 1,000 miles.

This entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army difficulty was encountered by reason of the lack of sufficient means for lightering the transports which could not approach the small dock at Daiquiri, and this office was advised of the needs of the command. Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, Fla., which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow, the *Ora*, *Ben*, and *Touart*, the former chartered, the last two purchased by the Department, was dispatched with orders to proceed direct to Santiago; and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, was dispatched to Santiago from New Orleans. These tugs lost all their barges and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition with a large force of mechanics of various trades, and laborers, with machinery, such as pile drivers, implements for construction of docks and railways, with the necessary materials—iron and lumber—for building docks, lighters, repairing railroads and engines. The company was furnished the steamship *Panama* and two fine ocean tugs, the *Gladisfen*, which was chartered, and the *Gypsum King*, which was purchased. This outfit proceeded to Santiago and thence to Ponce, Porto Rico, where their services have been of great value in the operation of the army in that harbor.

To provide lighterage for the transport ships this Department purchased the tugs *Gypsum King*, *Britannia*, and *Sarah*, the barges *E. L. Bartley*, *Willie*, *Annie*, *Mocha*, *Helen*, and the lighter *L. E. Rhinehardt*, costing \$241,800. These vessels, with the exception of the tug *Britannia*, which has been in service in New York Harbor and at Montauk Point, have been sent to Ponce, Porto Rico, where they are usefully employed.

The total expenditure for the purchase of all vessels of all classes has been as follows:

14 vessels on Atlantic coast.....	\$5, 431, 000
2 vessels on Pacific coast.....	800, 000
Tugs, barges, and lighters.....	245, 300
Total	\$6, 476, 300

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army. The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, having been selected as a reception camp for the returning army, preparations were made for the safe and speedy landing of the troops as they arrived, and for the supplies required by them. For this purpose there were chartered eight small vessels and two flat boats, besides the steamship *Shinnecock*, 1,205 tons burden, which was employed to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment. Upon breaking up of camp at Montauk these vessels were dispensed with.

INVASION OF PORTO RICO.

The reenforcements sent to General Shafter's army in Cuba, consisting of General Garretson's brigade, which sailed from Charleston, S. C.; a force of artillery from Tampa, Fla., and one regiment, the Eighth Ohio Volunteers, from New York City, arrived at Santiago just previous to the surrender of the Spanish army in that province, and their services were not needed. The Eighth Ohio Volunteers, being on the U. S. S. *Yale*, were disembarked, and the remainder of the command sailed to Ponce, Porto Rico, where it was disembarked. Other troops were dispatched to Ponce, viz:

General Ernst's brigade from Charleston, General Hains's brigade, General Schwan's brigade, General Grant's command, and eight batteries of artillery from Newport News, and Colonel Griffin's engineer regiment from New York, a total movement of about 16,000 men and 3,367 animals, with their artillery, equipments, and supplies, and a large quantity of ammunition and many army wagons.

Of these troops there have been returned to New York 5,581 men and 256 convalescents to Fort Monroe.

CANCELLATION OF CHARTERS.

As the chartered transport ships have arrived from Cuba and Porto Rico with returning troops orders were given for many of the vessels, upon the disembarkation of the troops, to proceed to their home ports for discharge from the service. A total of fifty-two vessels of the various classes have been discharged and returned to their owners, and others will be discontinued as rapidly as the interests of the service will permit.

EXPEDITIONS TO THE PHILIPPINE ISLANDS.

Seventeen of the large steamships on the Pacific and one large sailing vessel were chartered by the Department for the transportation of troops and supplies to the Philippine Islands, and two steamships have been purchased for this service.

The first expedition sailed from San Francisco, Cal., on May 25, under command of General Anderson, with 2,491 officers and men upon three steamships—*City of Sidney*, *Australia*, and *City of Peking*.

The second expedition, under command of General Greene, with 3,586 officers and men, sailed on June 15 on the steamships *China*, *Colon*, and *Zealandia*.

The third expedition, under command of General Merritt, with the command of General McArthur, consisting of 4,847 officers and men, sailed on June 25, 27, 28, and 29 on the steamships *Senator*, *Morgan City*, *City of Para*, *Indiana*, *Ohio*, *Valencia*, and *Newport*.

The fourth expedition, under command of General Otis, with 1,682 officers and men, sailed July 15 on the steamships *Peru* and *City of Puebla*, followed on July 19 by the steamship *Pennsylvania*, with 1,348 officers and men.

The last expeditions, under command of Gen. H. G. Otis, sailed on July 23 and 29 on the steamships *City of Rio de Janeiro* and *St. Paul*, with 1,735 officers and men.

These vessels have all arrived at Manila without mishap, and reports received show that the health and comfort of the men were maintained during the long voyage of over 7,000 miles.

The sailing ship *Tacoma*, with 30 enlisted men, 19 civilian teamsters, 210 horses and mules, 44 wagons and ambulances, and six months' supply of subsistence and forage, sailed from San Francisco on August 6. On August 21 the steamship *Arizona*, with 490 officers and men and 4 Red Cross nurses on board, sailed from San Francisco, and on August 29 the steamship *Scandia* sailed with troops for Honolulu and 173 officers and men for Manila.

The entire movements show that transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

TROOPS FOR HONOLULU.

Upon the acquisition of the Hawaiian Islands the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel, 11 officers and 313 men, who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

The total movements by transport ships up to September 15 have been as follows:

	Men.
To Cuba	28, 195
To Porto Rico	17, 460
To Manila	16, 405
To Honolulu	629
Returned from Cuba	21, 686
Returned from Porto Rico	5, 541
Civilian employees transported	2, 920
Total	92, 863

TRANSPORTATION OF SPANISH PRISONERS OF WAR.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American Army, it was agreed that transportation should be fur-

nished by the United States Government for the Spanish prisoners of war to Spain and to provide subsistence to them while en route.

The Quartermaster's Department was directed to provide for carrying out the terms of this agreement. In response to public advertisements, proposals for the transportation from Santiago de Cuba to Cadiz, or to such other port of Spain as might be designated, for 1,000 commissioned officers and 24,000 enlisted men, and for their subsistence en route, were received and opened on July 20, 1898. Ten proposals were received, which were carefully considered, and the one submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted, and contract entered into with that company for the transportation of all the prisoners of war, the commissioned officers to be provided with first-class cabin accommodations on the ships and the enlisted men with third-class or steerage passage, with suitable galley accommodations, conforming to the United States requirements as to space and ventilation for enlisted men, and to provide subsistence while en route equal to the garrison ration of the United States Army. The rates to be paid under the terms of the contract were for each commissioned officer \$55 per capita and for each enlisted man \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company, Limited; Hamburg-American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co., Limited; North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons and Company, Limited; and Wilson & Furness Leyland Line, Limited, which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival or demurrage to be paid at the rate of 60 cents per capita per day, passenger capacity. If passengers are on board during such delay 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. "Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but desire, if necessary, an extension of time to include the entire month of August."

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number transported to \$1,312,915, whereas the contract entered into had no demurrage conditions, and the actual sum paid was \$513,860.

Mr. Solon F. Massey, agent Quartermaster's Department, was designated to superintend the embarkation under the general supervision of the chief quartermaster, Department of Santiago, and to report the number of officers and men which were put on board the vessels. The Government decided to include in the transportation the wives and children of the officers, and the priests and Sisters of Charity who had been in service in the hospitals and with the Spanish army.

The report of Mr. Massey states that the embarkation began on August 9, 1898, and was completed on September 17, 1898, and that 22,864 persons were embarked.

Mr. Massey states in his report that with the exception of the delay of eleven days in getting the Spanish prisoners from Baracoa and Sagua de Tanamo to Guantanamo, where the transport ships awaited them, the embarkation was expeditiously and satisfactorily accomplished; that he

inspected the ships and found all of them well arranged for the service they were engaged to perform and well equipped for the comfort of the men, and with ample quantities of food for the subsistence of the passengers for fifteen days and varied in quality; that three of the vessels were fitted out as hospital ships, viz, *Alicante*, *Cheribon*, and *San Ignacio*, which were well equipped for that service, with surgeons and assistants and modern appliances for the care and comfort of the sick. The cost for this service, as above stated, amounted to \$513,860.

WEEKLY STEAMSHIP LINE FROM NEW YORK TO CUBA AND PORTO RICO.

The permanent occupation of the islands of Cuba and Porto Rico by the Army has rendered necessary the transportation of large quantities of army supplies to those islands, and also the mails for troops. It was therefore determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York, for the transportation of supplies and mails for the Army, and also such officers, enlisted men, employees, and other persons who are entitled, by competent orders, to be furnished transportation by the Quartermaster's Department between those points. This line was opened Wednesday, August 31, 1898, on which date the steamship *Seneca* left New York with the Porto Rican Commission on board, sailing direct to San Juan, Porto Rico, where the commission disembarked and the vessel proceeded thence to Ponce, Porto Rico, and thence to Santiago de Cuba, at which places, after delivery of supplies and mails, she returned direct to New York with passengers and mails.

Since the sailing of the *Seneca* from New York a steamship has sailed from that port every Wednesday for Ponce, Santiago, and return, and it is anticipated that the fine transport ships now owned by the Department will be found amply sufficient to maintain this regular service and perform such other ocean transport service as is required for the maintenance of the armies serving in Porto Rico and Cuba.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island, upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

Since the occupation of Santiago by the Army a large quantity of supplies belonging to the Red Cross Society and not needed at Santiago has been loaded on the chartered steamship *Clinton* and transported to Havana. The steamship *Comal* has been turned over to the Subsistence Department of the Army, and is engaged in the transportation of relief supplies to Havana and Matanzas.

ASSIGNMENT OF OFFICERS TO DUTY ON QUARTERMASTER'S TRANSPORTS.

The transport service of this Department for the transportation of troops and supplies by sea assumed large proportions soon after actual hostilities began. It became necessary and important, in order that this service be made effective, to assign an officer of the Army on the transports which were purchased by the Government. The officers so assigned, to a large extent, were volunteer quartermasters, who in the performance of their duty acted for both the Quartermaster's and Subsistence departments.

BARRACKS AND QUARTERS.

Congress, by act approved March 2, 1897, appropriated the sum of \$750,000 under head of "Barracks and quarters," and in the deficiency act of May 4, 1898, an additional sum of \$300,000, making a total of \$1,050,000 available for construction.

The sum of \$763,275.61 was expended during the last fiscal year in the construction and repairs of barracks, officers' quarters, storehouses, for camping grounds, and for rent.

The sum of \$74,816.84 was expended during the fiscal year for construction and repair of hospitals at military posts, which includes a post hospital at Fort Hamilton, N. Y., costing \$16,522; one at Fort Hancock, N. J., costing \$18,810.50; and an addition to hospital at Fort Wayne, Mich., costing \$12,357.

MILITARY POSTS.

In the act of Congress making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1898, there was provided "for the construction of buildings at and the enlargement of such military posts as in the judgment of the Secretary of War may be necessary, the sum of \$420,000, of which not less than \$50,000 shall be expended at the military post at Spokane, Wash. And the Secretary of War may, in his discretion, use not to exceed \$20,000 of said sum to purchase the former post trader's buildings at Fort Assiniboine, in Montana."

Twenty thousand dollars has been, in accordance with this law, expended for purchase of buildings at Fort Assiniboine, leaving \$400,000 available for construction. This sum has been apportioned as follows:

Fort Ethan Allen, Vt	\$69,933.60
Fort Point, Tex	35,410.00
Fort Hamilton, N. Y	125.00
Fort Hancock, N. J	3,823.00
Fort Harrison, Mont.....	30,000.00
Jefferson Barracks, Mo.....	92,523.34
Fort Myer, Va	95.00
Plattsburg Barracks, N. Y.....	94.60
Plum Island, New York.....	43,338.96
New post near Seattle, Wash.....	50,000.00
New post near Spokane, Wash.....	55,532.00
Fort Wayne, Mich	100.00
Willels Point, N. Y	17,098.40
Balance June 30, 1898	1,921.10
Total	400,000.00

FORT ETHAN ALLEN, VT.

There has been constructed at this post one double barrack, three double sets officers' quarters, all of brick, with plumbing, heating, and gas piping for same; also two cavalry stables and plumbing for same.

NEW POST NEAR SEATTLE, WASH.

There are being constructed at this post one double barrack, one double set captains' quarters, one double set lieutenants' quarters, one quartermaster and subsistence storehouse, and two double sets non-commissioned staff officers' quarters, all of wood, with plumbing and gas piping for same; also one bachelor officers' quarters of brick, and necessary plumbing, heating, and gas piping.

JEFFERSON BARRACKS, MO.

- There has been contracted for and completed at this post one set of commanding officers' quarters, five double sets of officer's quarters, and three double barracks, all brick, including plumbing, heating, and gas piping for same.

NEW POST AT FORT POINT, TEX.

At this post there has been contracted for, to accommodate one battery of artillery, two double sets of officers' quarters, one double set noncommissioned staff officers' quarters, one barrack, one administration building, one guardhouse, one quartermaster and subsistence storehouse, one stable and wagon shed, and one shop, all of wood.

FORT HARRISON, MONT.

This post is being enlarged by the addition of one set commanding officer's quarters, one set noncommissioned staff officers' quarters, and one band barrack, all of brick, with necessary plumbing, heating, and gas piping.

NEW POST AT PLUM ISLAND, N. Y.

Buildings are being constructed at this post for the accommodation of a battery of artillery. These buildings consist of two double sets of officers' quarters, one double set noncommissioned staff officers' quarters, one barrack, one administration building, guardhouse, quartermaster and subsistence storehouse, stable, and shop, all of wood.

MILITARY POST AT SPOKANE, WASH.

This post is being completed for two companies by the erection of an administration building, quartermaster's stable, quartermaster and subsistence storehouse, guardhouse, hospital, hospital stewards' quarters, magazine, and shop, all of brick. Plumbing, heating, and gas piping provided in such of the buildings as required. Also a wood coal shed.

WILLETS POINT, N. Y.

There is being built at Willets Point, N. Y., one three-company mess hall and kitchen, with heating and plumbing, costing \$18,724.36.

WATER SUPPLY, SEWERAGE, ETC.

From the appropriation for army transportation the sum of \$298,175.60 was expended during the fiscal year for water supply, sewerage, plumbing, and drainage; \$73,417.28 for roads, walks, grading, bridges, etc.; \$15,572.92 for wharves.

From the appropriation for regular supplies, the sum of \$103,956.18 was expended for lighting, heating, and cooking apparatus.

CAMPS FOR THE TROOPS.

During the war, camps were established for military purposes at Tampa, Fla.; Mobile, Ala.; Camp George H. Thomas, Ga.; Camp Alger, Va.; Camp Poland, Knoxville, Tenn.; Jacksonville, Fla.; Miami, Fla.; Fernandina, Fla.; Camp Wikoff, N. Y.; Camp Hamilton, near Lexington, Ky.; Camp George G. Meade, Pa.; Camp Wheeler, Huntsville, Ala.;

and Camp Shipp, Anniston, Ala. All necessary temporary storehouses, hospitals, and other buildings were erected or hired, and tents floored. Water facilities were arranged for either by driven wells, pumping plants, or by connecting camps with city water mains. To insure a supply of good water many of the camps were furnished with a number of approved portable filters, and one with boilers for boiling water.

During the latter part of April, 1898, five buildings were rented at Key West, Fla., for a general hospital. An office and storeroom were also rented and temporary buildings constructed for kitchen, dining room, closets, etc., and a water-supply system, including distilling plant, installed for the hospital and post at Key West Barracks, Fla., at an approximate cost of \$20,682.25.

Many of the buildings at Fort McPherson, Ga., Fort Myer, Va., and Fort Thomas, Ky., were used as general hospitals.

On July 3, 1898, instructions were given for the erection of tents and temporary buildings on the Fort Monroe (Va.) reservation, for a general hospital to accommodate 500 patients and 100 attendants. The work was completed July 23, 1898, at a cost, exclusive of tents, of \$5,016.12.

On July 20, 1898, the Secretary of War authorized the establishment, near Fort Monroe, Va., of a pavilion hospital of 1,000 beds. A tract of land on the line of an electric railway, about 2 miles from the post, was leased, at \$500 per annum, and on this site the following buildings and improvements are in course of completion, the cost to September 30, 1898, being reported as follows:

Main buildings	\$40,500
Covered way	4,000
Plumbing and water and sewer system	17,293
Electric-lighting system	1,592
Laundry machinery	2,370
Side tracks, etc	1,287
Roads	610
Quarters for female nurses and medical officers	14,700
Plumbing same	3,039
Electric lighting same	235
Garbage cremator	1,456
Miscellaneous	3,164
Total	90,276

The sum of \$20,000 was authorized for a distilling plant at the Philippine Islands, including machinery for taking water from a tower to a higher level and providing larger camps with water from one or more sources of supply.

RESERVATIONS.

Under act approved July 8, 1886, forty-five lots, comprising part of old Fort Brady, Mich., have been sold at public and private sale, and the sum of \$39,100 realized therefrom. Nineteen lots still remain unsold.

The sum of \$7,398 has been realized from the sale of lots comprising old Fort Bliss, Tex. The act of August 9, 1894, provided that so much of the receipts from the sale of this reservation, not to exceed \$4,000, are appropriated for the construction of a military road between the city of El Paso and new Fort Bliss, Tex., and accordingly a contract was made for said road, at a cost of \$3,976.77.

Under act approved March 2, 1895, the citizens of Seattle, Wash., have finally tendered an acceptable site to the War Department for the establishment of a military post thereon, which included certain tide lands and right of way for wharf convenience. The title has been reported upon favorably by the Department of Justice.

Some 1,100 acres of land have been secured under the acts of Congress approved June 11, 1896, and July 7, 1898, for target range for use of troops stationed at Jefferson Barracks, Mo.

FIELD FILTERS.

The question of providing good water for the troops by the means of a field filter was made the subject of early and careful consideration. On the recommendation of the Surgeon-General of the Army, the Secretary of War authorized the purchase of 3,000 filters of special pattern, of the Berkefeld-Maignen and Pasteur-Chamberland manufacture, at a cost of \$69,100. These filters were distributed to the various military camps.

NATIONAL CEMETERIES.

There are 83 national cemeteries and 75 superintendents. The interments therein to June 30, 1898, were 337,296.

Ten thousand white marble headstones were provided during the fiscal year to mark the graves of known Union soldiers, sailors, and marines in national, post, city, and village cemeteries.

The roadway authorized by act of Congress approved June 8, 1896, from north side of Cache River Bridge, in Pulaski County, Ill., to connect with the graveled road running from Mound City, Ill., to the Illinois Central Railroad, in said county, has been completed, at a total cost of \$14,995.87.

Under the act of Congress approved June 4, 1897, the work of construction of extension of Phelps Boulevard, the Government road from Springfield, Mo., to the national cemetery near that city, was completed, at a total cost of \$2,230.60.

The sum of \$5,159.66 was expended during the fiscal year for repair of roadways which have been constructed by special authority of Congress.

Under a special appropriation of \$15,000 made by Congress by act approved January 28, 1898, contract was made for rebuilding the lodge and outbuildings, providing the necessary water supply and drainage, reconstructing the inclosing wall, providing gates, etc., at Fort Smith (Ark.) National Cemetery. The work is now in progress.

At Cavehill (Ky.) National Cemetery an addition of 2,366 square feet of ground adjoining the cemetery grounds was donated to the United States by the Cavehill Company, of Louisville, Ky., for the purpose of erecting therein a permanent rostrum. This addition was accepted by the Department, and the rostrum completed on May 19, 1898.

During the year all necessary improvements and repairs have been made at the various national cemeteries and the grounds kept in good condition.

GRAVES AT SANTIAGO.

On August 6, 1898, the President ordered that the graves of our soldiers at Santiago should be permanently marked, stating that the present marking will last but a short time, and before its effacement suitable and permanent markers should be put up.

On August 10, 1898, upon receipt of the above order from the Secretary of War, the chief quartermaster at Santiago, Cuba, was instructed by cablegram to take immediate steps to erect temporary markers and prevent effacement of any markers erected at soldiers' graves at Santiago.

On August 23, 1898, Mr. D. H. Rhodes, a capable and reliable employee of this Department, was sent to Santiago, Cuba, by this office, with directions to report to Maj. Gen. H. W. Lawton, commanding that department, for the specific duty of erecting suitable markers at the graves of our soldiers at Santiago and vicinity. He was especially instructed to ascertain the exact location of our dead, securing, if possible, the names, ranks, companies, regiments, and dates of death of all soldiers buried there, also names and dates of death of employees and other American citizens who had been interred there since the army landed in Cuba, making a complete record thereof, and take prompt measures for the erection of wooden markers at said graves until permanent ones could be supplied. Mr. Rhodes was further directed to make such examination of this subject as to be able to report and identify the burial place of every United States soldier and American citizen buried at Santiago and vicinity, and at the same time prepare a complete record of every case showing exact location of each burial site, in order that the identification of the place of burial of all our soldiers and citizens can hereafter be ascertained with accuracy. Mr. Rhodes reported his arrival at Santiago on August 31, 1898, and upon completion of this important work will submit full and detailed report to this office.

Under the act of Congress approved July 8, 1898, the sum of \$200,000 was appropriated to enable the Secretary of War, in his discretion, to cause to be transported to their homes the remains of officers and soldiers who die at military camps, or who are killed in action or who die in the field at places outside of the limits of the United States.

No definite plans have yet been formulated by the Department in regard to the removal of the remains to the United States, but the subject is under consideration.

ORGANIZATION.

Soon after the declaration of war it became apparent that the very large volume of business in the office of the Quartermaster-General and in the Quartermaster's Department at large could not be efficiently performed without a rearrangement in the assignment of the various departments of duty.

Congress on July 7, 1898, passed an act "to increase the efficiency of the Quartermaster's Department of the Army," which authorized the Secretary of War to make such distribution of the duties and labors of the Quartermaster's Department, as well as the assignment of its officers to important and special lines of duty, as might be deemed for the best interests of the service.

Under the provisions of the above-mentioned law this Department has been enabled to largely increase its efficiency by a proper distribution of the work, and a more advantageous assignment of its officers.

CHICKAMAUGA PARK, GEORGIA.

Col. J. G. C. Lee, assistant quartermaster-general, U. S. A., an able, experienced, and efficient officer, was chief quartermaster at Chickamauga Park, Georgia, where he assumed duty on April 19, 1898, and arranged for the reception and care of the large body of troops camped at that place. He continued on this duty until the camp was broken up. The duties and responsibilities devolving upon him were very exacting.

While there he arranged for the transportation of 70,734 officers and men, 8,366 horses, 6,673 mules, and 1,490 carloads of freight, and also attended to the reception and distribution of a vast amount of quartermaster, subsistence, and medical supplies. There were also purchased under his direction 1,839 horses and 2,880 mules.

NEW ORLEANS, LA.

Col. J. W. Scully, assistant quartermaster-general, U. S. A., stationed at New Orleans, La., also an experienced officer of this Department, performed important service at that station in selecting camps for the troops in that vicinity, inspecting transports with a view to charter, loading and unloading transports, fitting them out, besides the numerous other duties pertaining to the Quartermaster's Department at that station.

MOBILE, ALA.

Lieut. Col. J. W. Pullman was the officer of this Department on duty at Mobile, Ala., where he arrived on April 18, 1898. He performed the duties required of him pertaining to the supplying of the Fourth Army Corps while in that vicinity, besides giving careful attention to the fitting out of a number of Government vessels at that port.

CHICAGO, ILL.

Lieut. Col. F. B. Jones, chief quartermaster, U. S. Volunteers, was acting chief quartermaster, Department of the Lakes, Chicago, Ill., which duty he assumed on April 19, 1898. During the war Chicago was one of the principal points for the purchase of clothing and equipage, means of transportation, and various other articles of quartermaster supplies.

ARTILLERY SIEGE TRAIN.

Capt. Thomas Swobe, assistant quartermaster, U. S. Volunteers, was on duty as quartermaster with the artillery siege train at Tampa, Fla., from June 20 to August 21, 1898. This train consisted of 116 army and 55 escort wagons, 4 ambulances, 950 mules, and 12 horses belonging to the Quartermaster's Department, and 740 artillery horses.

NEW YORK DEPOT.

This depot is in charge of Col. A. S. Kimball, deputy quartermaster-general, U. S. A., who is assisted in the performance of the important duties pertaining to this station by Maj. J. W. Summerhayes, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), who has charge of inspection of vessels and fitting out transports; Capt. I. W. Littell, assistant quartermaster, U. S. A., who has charge of the supply distribution and manufacture of clothing and camp and garrison equipage; Capt. Wirt Robinson, assistant quartermaster, U. S. Volunteers (first lieutenant, Fourth Artillery) has charge of transportation matters.

From April 1, 1898, to September 1, 1898, transportation was provided from this depot for 1,629 officers and 33,902 enlisted men.

Colonel Kimball's report shows that at the beginning of the war, in order to supply the immediate needs of the troops, large quantities of clothing material had to be purchased, and that in two weeks' time

100,000 blouses and trousers were manufactured and ready for delivery. The business at this depot was vastly increased during the war, but all demands were promptly and efficiently met by the officers on duty thereat.

ST. LOUIS DEPOT.

This depot is under the charge of Col. G. C. Smith, deputy quartermaster general, U. S. A., assisted by Maj. Charles A. Booth, quartermaster, U. S. A. All the business of this depot, including the manufactures and issues, was transacted promptly and efficiently.

In addition to the other expenditures 1,718 horses and 16,472 mules were purchased under the direction of Colonel Smith, who was assisted in this work by Maj. Thomas Oruse, quartermaster, U. S. Volunteers.

PHILADELPHIA DEPOT.

Col. J. V. Furey, deputy quartermaster-general, U. S. A., is in charge of this important depot of supply. He was assisted in his work by Lieut. Col. F. H. Hathaway, Maj. C. A. H. McCauley, and Capt. G. S. Bingham, of the Quartermaster's Department, U. S. A.

When war was declared this depot had ample supplies on hand to meet the requirements of the Regular Army, but the increase of troops on a war footing required extraordinary service to supply a force ten times greater than the established force on a peace footing. From the commencement of hostilities to the present date the officers and employees on duty at this depot have been engaged day and night to receive, issue, and ship supplies to the troops. Every department of work at this large depot was taxed to its utmost. The cutting department, where the garments are cut and prepared, has been largely increased, to the extent that the output is beyond 3,000 garments daily. Most of these articles are given out to sewing women, who numbered some 1,100 before the war, and now range in numbers between 4,000 and 5,000.

Tentage for troops exacted all the resources of the depot, so much so that it was found imperative to secure their manufacture elsewhere. Difficulty was experienced at first in securing the making of shelter tents. This, however, was overcome and deliveries in large quantities were daily supplied.

The transportation of troops and supplies, so far as came within the jurisdiction of this depot, was promptly met and well provided for.

JEFFERSONVILLE DEPOT.

This depot was under the charge of Col. Charles W. Williams, deputy quartermaster-general, U. S. A., assisted by Lieut. Col. Charles R. Barnett, quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.).

Upon the breaking out of the war ample stores were on hand at this depot to meet all the requirements of the Regular Army in time of peace. The demands of the greatly increased military forces, however, made it absolutely necessary that large purchases of supplies be immediately made and the promptest possible delivery secured. Every resource of this depot was greatly taxed to meet the increased demands. It at once became necessary to enlarge all the departments of work upon a broader scale in order that the increased volume of business could be promptly handled.

An examination of the report of purchases, manufactures, and issues made at this depot from April 21 to August 15, 1898, shows a very large increase over the amount of work usually handled there, which required the most exacting service of the officers and employees. During the brief period of the war the shipments from this depot amounted to 6,409,298 pounds. The total number of articles shipped was 3,900,071.

SAN FRANCISCO DEPOT.

This depot is under the charge of Lieut. Col. Oscar F. Long, of this department. Under his careful attention all the troops concentrated at San Francisco and vicinity, from all parts of the Union, were promptly equipped and furnished with all needful quartermaster supplies. The fitting up of all the Government transports for use of the expeditionary forces to the Philippine Islands was promptly attended to by the officer in charge of this depot. The purchases and issues made at this depot from the beginning of the war to the close of hostilities were very large.

Lieutenant-Colonel Long states:

The organization of the depot previous to the present emergency provided for the supply of 3,000 men, ample time for preparation in securing the same having been allowed in times of peace; suddenly, without warning, the call for troops, their mobilization, and transportation to this point in large numbers necessitated energetic action to meet the demand, the supply for which was unprecedented and the calls for which were urgent, requiring immediate action.

Regiments, battalions, and detachments arrived from twenty States and Territories of the Union, some even without shoes and wearing bandanas in lieu of hats—without tentage, with nothing for comfort, and even without the few necessities which suffice for the simple needs of the soldier.

The field of supply of this depot was rapidly enlarged and, now that the emergency has passed, a consideration of the records shows that we have supplied with clothing and equipage, perfectly, properly, and completely, in accordance with law, orders and regulations, in filling approved requisitions, 31,198 troops—regulars and volunteers—destined for Cuba, Manila, Honolulu, and Alaska.

This depot has prepared for service and dispatched for Manila 21 transports chartered by the Government, a distance of 7,259 miles—one of the longest transport services recorded in military history—all of the troops being transported safely, without the loss of a life, for which the Quartermaster's Department can be held responsible.

The transports were provided with every modern convenience which intelligent foresight or thought could secure for the welfare and comfort of the troops, and the arrangements were carried out under the supervision and inspection and with the assistance of expert seamen and, in many instances, of naval officers. The sanitary arrangements and air space were indicated by Army medical officers, and the number of troops transported was the subject for orders of the commanding officers of the expeditionary forces. No mistake in this regard was made here attributable in the slightest degree to the Quartermaster's Department.

WASHINGTON DEPOT.

Maj. T. E. True, of this Department, is the officer in charge of this depot. Soon after the declaration of war the work increased so rapidly that it was found necessary to procure enlarged quarters for the proper transaction of the public business; accordingly, on July 25, 1898, his office was removed to the building on the southwest corner of Seventeenth and F streets (known as General Grant's old headquarters).

The work at this depot was augmented very largely during hostilities, and to properly dispatch the large volume of business required the most exacting services on the part of the officer in charge and his corps of employees. During the brief period of the war the shipments from this depot amounted to 28,940,406 pounds.

QUARTERMASTER'S DEPOT, BOSTON, MASS.

This depot is in charge of Maj. John McE. Hyde, (captain and assistant quartermaster, U. S. A.), who rendered zealous service.

The work at this depot during the war increased fourfold, and includes the purchase of considerable quantities of clothing, and large office and storage accommodations became necessary in order to meet the requirements of the service.

TAMPA DEPOT.

On April 16, 1898, Maj. J. W. Pope, quartermaster, U. S. A., was assigned to duty at Tampa, Fla., and had charge of the affairs of the Quartermaster's Department there until May 18, 1898, when he was transferred to San Francisco, Cal., for duty at Manila. Col. C. F. Humphrey, deputy quartermaster-general, U. S. A., arrived at Tampa, Fla., May 1, 1898, and on the 18th of that month assumed general supervision of the quartermaster's depot at that place, and of ocean transportation at Port Tampa, and on the same date Capt. J. B. Bellinger, assistant quartermaster, U. S. A., relieved Major Pope of his depot duties.

The very rapid concentration of troops there, as also of large quantities of supplies, made it extremely difficult at first to receive and assort the supplies and equip the troops.

The railroad situation was very unsatisfactory on account of a congestion of cars, due to the large quantity of supplies of all the Departments thrown in at that point in a short space of time, and it required several weeks to entirely relieve the situation.

In a period of four months this depot handled over 13,239 carloads of freight, all of which were either loaded or unloaded by employees of the depot. Besides the handling in this short space of time this large number of freight cars and their contents, must be considered the great number of cars handled by the depot in a much less time while transporting some 66,000 troops, with their baggage and over 15,000 animals.

Some 1,500 pack animals were received and issued at this depot.

Repair shops were established and wheelwrights, blacksmiths, and saddlers were kept continually at work repairing wagons and harness. This expedited the business very much and resulted in much saving to the Government.

Storehouses were secured as rapidly as needed and filled with supplies, the issuing being expedited as much as possible. Issues were made daily, Sundays included, from 7 a. m. until 7 p. m., and late into the night work would be carried on in order to prepare for the issues of the next day. No technicalities were permitted to cause delay in issuing the supplies to the troops.

A résumé of the work done by the Quartermaster's Department at Tampa in the short space of four months is as follows:

Army corps equipped	2
Freight cars handled (loaded or unloaded)	13, 239
Officers and men transported	66, 478
Horses and mules transported	15, 309
Horses and mules received	11, 389
Horses and mules issued	9, 919
Wagons "set up"	604
Teams "broken out" (six mules)	141
Teams "broken out" (four mules)	520
Pack trains equipped	21
Wagons and ambulances repaired	699
Transports fitted out	33
Transports cleared	78

DUNN LORING, VA.

Lieut. Col. M. C. Martin, quartermaster, U. S. Volunteers, in addition to his other duties was placed in charge of the temporary depot at Dunn Loring, Va., from which the troops encamped at Camp Alger were supplied with all necessary quartermaster stores. He was assisted in his duties by Capt. James R. Hosmer, assistant quartermaster, U. S. Volunteers.

In connection with this depot there was also established a sub-depot at St. Asaph, Va., under the direct charge of Capt. E. H. Parsons, assistant quartermaster, U. S. Volunteers. The site selected for this sub-depot consisted of an unused race track near Alexandria, Va., containing about 40 acres. It is used as a corral and transportation depot where mules and horses are cared for and wagons and other means of transportation stored, repaired, and shipped. Since the declaration of war 6,000 mules and 614 horses were handled at this sub-depot, and 1,075 wagons were received, repaired, and issued.

TAMPA, FLA., AND SANTIAGO DE CUBA.

Col. C. F. Humphrey (now brigadier-general, U. S. Volunteers), chief quartermaster, arrived at Tampa, Fla., May 1, 1898, and the following day, at the request of General Shafter, took charge of the quartermaster's department at that place, so far as pertained to the fitting out of the expedition to Cuba. The same day he was placed in charge of the quartermaster's department at Tampa by telegraphic order from the honorable the Secretary of War.

Colonel Humphrey accompanied General Shafter's expedition to Santiago and attended to the unloading of the transports at the latter place. His work at both Tampa and Santiago was of the most important and laborious character, and was efficiently administered. He remained at Santiago until August 28, after the last troops of the expedition ordered north had embarked. With his report he submits a number of interesting and valuable statements in reference to the vessels belonging to or used by General Shafter's expedition to Cuba; also of the foreign vessels used to transport the Spanish prisoners of war to Spain. These statements are on file in this office.

Colonel Humphrey reports that transports began to arrive at Port Tampa early in May, and as fast as reported were fully coaled and watered and policed, and later fitted with bunks and stalls for the comfort of men and animals. The loading of the transports began at once, and was carried on speedily and systematically. This was, at best, difficult, owing to the limited wharf facilities. The place affords, in all particulars, most insufficient facilities for fitting out the many ships and embarking so large a force. The loading of all classes of stores was completed at 11 a. m. of June 6, and by 9 p. m., June 8, the troops were all on board and the expedition was fully embarked. The departure, however, was delayed until June 14, by reason of a report made by the naval authorities that the Spanish war vessels were seen in Nicholas Channel. The transports when sailing were in good order, but not in so prime condition as when the troops and animals were embarked.

The expedition arrived off the coast of Cuba, in the vicinity of Santiago, June 20, and debarkation began on the 22d at Daiquiri, some 17 miles east of Santiago. The debarkation of the infantry and cavalry from transports was completed by the night of the 23d. The

light artillery and battalion of heavy artillery were debarked two or three days later; and the troops of General Kent's division on the *City of Washington*, *Saratoga*, and *Santiago*, at this time lying some miles off the mouth of the harbor at Santiago, were debarked at Siboney by the 27th of the month. As soon as the debarkation of the troops was well under way the landing of the pack trains and pack equipage was begun and continued during the night and the following day until all the men, animals, and equipage were ashore. Then the draft mules, harness, teamsters, etc., were landed, followed by the landing of the rations, small arms, ammunition, light artillery and cavalry horses, harness, horse equipment, artillery carriages, artillery ammunition, and men. The landing of wagon transportation was then begun and pushed to the limit.

Many of the troops, however, debarked themselves in boats belonging to their ships during the two days and subsequent to 6 p. m. both days, at which hour the Navy hauled off and returned to their ships. "I can safely say that the men could in all cases have debarked themselves, as we had 153 boats capable of carrying ashore 2,500 men and equipments at one time." Besides the expedition's small boats, it had the steam lighter *Laura*, capable of easily carrying half a regiment at a time, and in which work it was employed during the two days of debarkation. This vessel was by far the most expeditious and comfortable means employed; and, furthermore, had it been necessary the *Cumberland* and *Manteo*, both light-draft steamers, would have been utilized for this service. The debarkation of troops was not at all difficult when compared with the work incident to the landing of animals, and especially in landing of war material and supplies belonging to the expedition.

Five small boats were wrecked in landing or endeavoring to land troops. Two of these were boats belonging to and manned by the Navy.

The landing of the animals was difficult and tedious, owing to the high surf and rough sea. It was not possible to land them at the wharf, even if time had permitted. They were therefore run overboard with halters and ropes on and led ashore by men in small boats. Often the animals would take a different course away from the boats, preventing rowing or steering, and causing confusion and the temporary loss of the animals. In all cases where animals got loose from a boat, and often when they had passed through the surf to firm footing where men were ready to receive them, they would turn back and swim out to sea, and in some instances the animals were drowned.

Had it not been for the failure of the steam-lighter *Bessie* to join, the desertion of the tugboat *Captain Sam*, and the loss of a decked-over lighter, the expedition would have been fairly well supplied for debarking the troops, lightering supplies, etc., of the expedition, and more satisfactory and expeditious results would have been accomplished.

The road leading from Daiquiri to Siboney and thence to Santiago was scarcely more than a trail, though it had been in use by the natives for centuries. That part between Siboney and Santiago was particularly bad, as it passed over a range of high ground and through depressions, ravines, water courses, and small rivers. There were no bridges. The road required a great deal of work to make it of any use. Being exceedingly narrow, turn-outs had to be made at intervals to provide for the passing of teams and pack trains. With the use of the road when wet it became impassable in many sections, and new road was cut through brush and timber where possible. The time given to the

improvement of the road by the United States engineers was very considerable, resulting in the material improvement of the old road by corduroying with brush, filling depressions, removing bowlders, bridging streams, cutting through woods, and roughly making new road in part. With all this work done upon it, however, it was at no time in really good order, and a part of the time, as stated, was all but impassable, thus rendering it most difficult to meet the demands from the front. The moving of pack and wagon trains leaving Siboney and the front had to be timed, and with all care possible temporary blockades occurred, especially when the sick and wounded were being brought to the rear. Difficulties were also experienced in supplying the troops and animals at the front, owing to the lack of experienced teamsters. The pack-train teams were manned at first by civilians, but they rapidly fell sick, and their places had to be filled by soldiers, not always skillful in this work.

All the transports were taken into Santiago Harbor July 18, and by August 1 fifteen of them had been unloaded and sent North.

On August 4 orders were received to ship the expedition North, which was done with great dispatch, and it should be stated here that all these vessels were inspected and reported in good condition for the service required by Dr. Ives, chief surgeon First Division, Fifth Army Corps. It should be understood that many of the vessels had to be coaled, still many more watered, and nearly all required ice.

The work done by the Department throughout the campaign (beginning at Tampa) was enormous. There was no rest by day and none often by night, and, while much did not run as well and smoothly as it would have done at a later period, the expedition fulfilled its mission exceedingly well. The tabulated statements show in part what was accomplished, but no statement of the kind, however elaborate, could adequately show the actual work performed.

Colonel Humphrey states further that he did not leave Santiago until the last troops for duty of the expedition ordered North had embarked. All the sick had preceded him, except some 400 which the chief surgeon desired to remain behind.

Capt. Charles J. Goff, assistant quartermaster, U. S. Volunteers, was sent to Cuba on the steamer *St. Paul*, with a large supply of clothing and other quartermaster supplies, to report to General Shafter to establish a quartermaster's depot at such place as he might designate. The *St. Paul* sailed from New York on July 6, 1898, and arrived off Siboney, Cuba, July 10, 1898. The vessel was not discharged then, but the supplies were transferred July 15 to 17 at Guantanamo Bay to the small steamship *Comal*, which was held there until after the surrender, when she was anchored in the stream at Santiago de Cuba July 21, and in a few days thereafter issue of supplies to the troops commenced.

Lient. Col. J. W. Jacobs, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), relieved Colonel Humphrey, and was assigned as chief quartermaster, Department of Santiago, Cuba. Lieutenant-Colonel Jacobs served in that capacity until October 11, 1898, when by reason of sickness he returned to the United States. This left the transaction of the business pertaining to the quartermaster's department at that place in the hands of Maj. John T. Knight, depot quartermaster, and of Capt. Alfred M. Palmer, assistant quartermaster, U. S. A., who are assisted by Captains Scott, Barker, and Gonzales, volunteer quartermasters.

DEPOT AT PONCE, PORTO RICO.

Lieut. Col. J. W. Pullman, quartermaster, U. S. A., sailed from Tampa, Fla., on the steamer *Rita* on August 15, 1898, for Ponce, Porto Rico, with a full supply of quartermaster stores, employees, etc., for the purpose of establishing a quartermaster's depot at that place, from which to issue all necessary supplies required by the troops operating there. He arrived at Ponce on August 22, 1898, and established a temporary depot at that place.

The construction of a landing pier there, extending from the shore out into the harbor a distance sufficient to reach a depth of 6 feet, was directed by General Miles and probably has been completed by this time. The water in this harbor deepens very slowly from the shore out, and ships drawing from 12 to 20 feet have to anchor from one-half to three-quarters of a mile from shore.

Lieutenant-Colonel Pullman reports that there are no docks in Porto Rico suitable for docking ships, and at St. Thomas, the nearest point, there are dry-dock facilities, but the charges are very exorbitant.

DEPOT AT HONOLULU.

Lieut. Col. George Ruhlen, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), is the officer of this Department who has been assigned to duty as depot quartermaster at Honolulu, where he arrived on August 28, 1898.

Lieutenant-Colonel Ruhlen reports that he has secured the necessary office rooms and storehouses for use of department headquarters and depot, and also about 15 acres of ground for a corral. He has organized and placed in service the Government mules and wagon transportation.

Arrangements have been made under which the Oahu Railway and Land Company, whose line is in operation from Honolulu to Waialua, a distance of 56 miles, will accept the regular Quartermaster's Department transportation requests for passenger service and Government bills of lading for freight service over their lines at their regular passenger and freight tariffs.

A building has been secured and ground surrounding it for general hospital. The building has been remodeled and enlarged, so that it now affords accommodations for 100 patients.

Upon the recommendation of the medical officers, galvanized iron boilers for boiling all the drinking water used by the troops were provided.

Lumber for flooring all the tents in both camps has been furnished, and the work is nearly completed. Temporary sheds for sheltering stores at the camp and at the quartermaster's corral have also been erected.

Arrangements have been made with local undertakers for the interment of the remains of deceased soldiers who died under treatment at the general hospital here. Up to this date 9 have been buried. They are all interred in a space specially set aside for the purpose in a local cemetery. Arrangements are being made to set up at the graves temporary wooden headboards, and a plat of the cemetery will be made for record.

The only resources of the country for building material are stone and sand. The stone is a very hard and brittle volcanic rock or lava, resembling in color blue limestone and in texture a very hard, gritty limestone.

Everything else requisite for construction work, except stone and sand, will have to be imported from the Pacific coast. The lime used is brought from California, but the cement is imported Portland, brought usually as ballast in sailing vessels direct from Europe. No bricks are made, those in use having been brought in ships as ballast from the Pacific coast. A limited quantity of lumber is kept on hand in local yards, but the whole supply in Honolulu to-day does not probably exceed 1,000,000 feet of all kinds. The price for which it is sold is not unreasonably high.

All the water heretofore used by the troops in camp and at the quartermaster's corral is that furnished by the city water supply plant. The source of supply is artesian wells, found everywhere on this island; the water-bearing sand or gravel stratum being encountered at a depth of from 200 to 300 feet below sea level, and the water usually flows to the height of 32 feet above sea level when confined in tubes. Almost the entire irrigation system of the Island of Oahu is supplied with water from these artesian wells. The water obtained from these wells appears to be pure and free from any objectionable taste.

MANILA, PHILIPPINE ISLANDS.

Lieut. Col. J. W. Pope, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), is the chief quartermaster at this station.

Owing to length of time required for mail communication no detailed report of operations of the Quartermaster's Department in the Philippine Islands has as yet been received.

OCCUPATION OF CUBA BY UNITED STATES FORCES.

Officers of this Department have been ordered to duty at Havana, Matanzas, Nuevitas, Gibara, Cienfuegos, and Manzanillo, Cuba, with a view to making every preparation possible for the United States troops previous to their arrival at the places named.

POST QUARTERMASTER-SERGEANTS.

The number of post quartermaster-sergeants in service at the beginning of the war being inadequate, Congress, by act approved July 8, 1898, provided for the appointment of 25 additional sergeants, and as rapidly as capable and suitable sergeants could be selected, appointments were made, so that there are now 99 of these sergeants in the service, who have been assigned to duty where their services are most urgently needed. The 6 remaining vacancies will be filled at an early date.

CONCLUSION.

In concluding this report, I desire to state that this office, during the war, has constantly kept in view the fact that the all-important duty devolving upon this Department was to provide for and promptly furnish the Army with all needful quartermaster supplies. For months the most energetic efforts have been made to the accomplishment of this purpose. Practically everything needed for the largely increased Army had to be purchased or manufactured and then transported to the numerous camps.

At the commencement of hostilities the regular establishment of this Department did not afford enough officers of experience to meet all the requirements of the extraordinary situation with which the Department was so suddenly confronted. Important problems had to be considered and solved, large business transactions had to be quickly concluded in order that the troops could be promptly equipped and hurried into the field, but notwithstanding all the difficulties it is believed that the Army has been well provided for. In this connection it should be remembered that within the few months of hostilities the military operations extended to such distant points as Santiago, Porto Rico, Honolulu, and the Philippines, where all needful quartermaster supplies for the Army have been promptly forwarded.

I feel deeply indebted to the officers of this Department for their valuable assistance in the accomplishment of the heavy task placed upon this branch of the public service. To them were committed most important trusts. Many of these officers have had responsible stations, great business responsibilities, and the most exacting executive duties. They deserve the highest credit for service efficiently performed, because upon the faithful and capable performance of the duties of a quartermaster the success of an army largely depends. The services of the officers who are on duty at the great depot and other important points where supplies are purchased and distributed are no less essential to success and involve no less labor and responsibility than those of the officers who accompany troops to the field.

I also gladly bear testimony to the zeal, fidelity, and intelligence with which many of the volunteer officers of this Department performed the important duties committed to them.

It is not only a matter of duty on my part, but also one of great pleasure, to here record my sincere appreciation of the able and efficient service of the officers associated with me in this office. They justly deserve the highest possible commendation for their intelligent and loyal discharge of the responsible and laborious duties imposed upon them. Day and night have they been at their posts of duty, rendering invaluable assistance, and only with their constant and untiring helpfulness has this office been able to promptly dispose of the immense volume of work coming daily to this office for consideration and action.

EMPLOYEES.

I do not forget the clerks and other employees serving in this office and throughout the Department at large. Without their assistance the work of this Department could not have been accomplished during the war emergency. Many of the permanent and experienced employees rendered most valuable and efficient service, some often working from twelve to fifteen hours a day, including Sundays and holidays. In a number of cases, by reason of their efficiency and experience, employees at Department headquarters were required to leave their homes and families to go to the field, and thereby were put to considerable expense without receiving additional compensation. These employees devoted all their energies to the interest of the public service. I strongly recommend that some action be taken by Congress to recompense all regular employees of this Department who performed this extraordinary service at a time when such service was of the greatest importance to the Government. A 20 per cent increase of their pay for one year would not be more than they justly deserve.

MEMORIAL BRIDGE.

I renew the recommendations of my predecessors that an appropriation be made by Congress for the construction of a bridge over the Potomac River between the Naval Observatory grounds and the Arlington Reservation, which will furnish a short and direct route to the cemetery and park and afford rapid communication between the capital and the large military post at Fort Myer, Va. This is an important matter, and it is hoped it may receive the consideration of Congress at its coming session.

Respectfully,

M. I. LUDINGTON,

Quartermaster-General, United States Army.

Hon. R. A. ALGER,
Secretary of War

APPENDIX.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 15, 1898.

GENERAL: I have the honor to submit my report of operations of the business coming under my charge in your office for the fiscal year ended June 30, 1898, subjects treated in the following order: Finance, money accounts, returns of quartermaster supplies, mail and record, and national cemeteries.

FINANCE.

In this branch are considered all matters relating to the procurement and distribution of funds; the compilation and preparation for Congress of the annual estimates of appropriations required for the service of the Quartermaster's Department, and for the Quartermaster-General's Office; the examination of estimates of funds received from disbursing officers; the action upon settlements made at the Treasury of claims and accounts pertaining to the Quartermaster's Department, etc.

Attention is respectfully invited to the accompanying statements, showing in detail the balance on hand at the commencement of the fiscal year; the amounts credited from appropriations, sales, etc.; the remittances to officers; amounts paid out on account of settlements; the amounts carried to the surplus fund, etc.

Herewith is also submitted a statement showing remittances from appropriations for this Department from the close of the fiscal year 1898 to September 1, 1898, aggregating in amount \$20,825,212.35.

Financial statement for fiscal year ending June 30, 1898.

[From the balance books in which all debits and credits are recurred.]

Appropriations.	Appropriated.		Placed to credit of appropriations during the year, being the proceeds of sales to officers, etc.	Placed to credit of appropriations by Treasury transfer warrants.	Total to be accounted for.	Requisitions issued on settlements made at Treasury June 20, of claims standing and warrants.	Amounts charged against appropriations by fund, act June 20, 1874.	Balance in Treasury June 30, 1898, and available for outstanding obligations.	Total accounted for.
	Amount.	Date of act.							
1895 and prior years.									
Regular supplies			\$634.78		\$634.78		\$634.78		\$634.78
Incidental expenses			16.09		16.09		16.09		16.09
Transportation of the Army and its supplies			1,905.94		1,905.94		1,905.94		1,905.94
Clothing, camp and garrison equipage			136.01		136.01		136.01		136.01
Construction and repair of hospitals			2.97		2.97		2.97		2.97
Pay of superintendents of national cemeteries			58.51		58.51		58.51		58.51
Repairing roads to national cemeteries			1,654.49		1,654.49		1,654.49		1,654.49
Headstones for graves of soldiers			221.15		221.15		221.15		221.15
Total			4,629.94		4,629.94		4,629.94		4,629.94
1896 and prior years, transferred account.									
Incidental expenses			17.00		17.00		\$17.00		17.00
Transportation of the Army and its supplies			114.45		114.45		114.45		114.45
Total			131.45		131.45		131.45		131.45
1897, transfer account.									
Transportation of the Army and its supplies			114.45		114.45		114.45		114.45

Financial statement for fiscal year ending June 30, 1898—Continued.

Appropriations.	Balance in Treasury undrawn July 1, 1897.	Appropriated.		Placed to credit of appropriations during the year, being the proceeds of sales to officers, etc.	Placed to credit of appropriations by Treasury transfer warrants.	Total to be accounted for.	Remitted to disbursing officers.	Requisitions issued on settlements made at Treasury of claims and accounts.	Amounts charged against appropriations by Treasury transfer warrants.	Amounts carried to surplus fund act June 20, 1874.	Balance in Treasury undrawn June 30, 1898, and available for outstanding obligations.	Total accounted for.
		Amount.	Date of act.									
Appropriations.												
1896.												
Land for rifle range near Madison Barracks, N. Y.	\$13.00					\$13.00				\$13.00		\$13.00
Barracks and quarters, 1895 and 1896	11,410.01			\$132.98		11,542.99	\$10.20	\$2,000.00		9,523.79		11,542.99
1896.												
Regular supplies	447,204.23			6,838.58		454,042.81		28.00		454,014.81		454,042.81
Incidental expenses	46,727.11			856.93		46,584.04	150.00	645.03		45,789.01		46,584.04
Horses for cavalry and artillery	558.00					558.00				558.00		558.00
Transportation of the Army and its supplies	303,811.64			3,585.49		307,397.13	521.47	15,224.17		291,651.49		307,397.13
Clothing, camp and garrison equipage	22,602.28			1,051.36		23,653.64		131.76		23,521.88		23,653.64
Construction and repair of hospitals	385.01					385.01		11.80		352.21		385.01
National cemeteries	1,375.17			89.79		1,414.96		27.00		1,387.96		1,414.96
Pay of superintendents of national cemeteries	152.99			16.00		168.99				168.99		168.99
Shooting galleries and ranges	768.40					768.40				768.40		768.40
Quarters for hospital stewards	8.18					8.18				8.18		8.18
Military posts	986.22			413.00		1,393.22				1,393.22		1,393.22
Repairing roads to national cemeteries	225.17			411.14		636.31				636.31		636.31
Burial of indigent soldiers.	1,366.50					1,366.50				1,366.50		1,366.50
Headstones for graves of soldiers	90.62			205.64		296.46	88.41	4.24		208.61		296.46
Total	825,736.12			12,918.13		838,654.25	759.88	16,072.00		821,822.87		838,654.25

1897.

Regular supplies	\$485,269.48	\$67,844.28	\$553,115.76	\$108,094.20	\$3,592.53	\$441,437.08	\$553,115.76
Incidental expenses	53,235.00	4,632.80	58,064.86	28,343.62	285.01	29,431.23	58,064.86
Horses for cavalry and ar- tillery							
Barracks and quarters	194,880.24	13.51	197,634.21	180,777.62	397.70	13.51	13.51
Transportation of the Army and its supplies	514,924.20	26,954.69	541,878.79	217,298.54	130,967.65	68,458.89	197,634.21
Clothing, camp and garri- son equipage	374,810.79	21,688.45	296,399.24	281,824.31	521.96	193,612.60	541,878.79
Construction and repair of hospitals	52.42	266.47	318.89	22.00		24,082.97	296,399.24
National cemeteries	11,733.21	15.55	11,748.56	11,243.14	12.10	296.89	318.89
Pay of superintendents of national cemeteries .....	.38	1.84	2.17			498.52	11,748.56
Shooting galleries and ranges for hospital stew- ards	25.70	260.62	286.32	10.00	25.70	2.17	2.17
Military posts	128,835.45	93.78	93.78	43.91		250.62	286.32
Repairing roads to national cemeteries	55.72	10,004.08	138,839.53	58,957.51		49.87	93.78
Burial of indigent soldiers	1,000.00		1,000.00	55.64		79,862.02	138,839.53
Headstones for graves of soldiers	1,879.00	112.22	1,491.23	800.00	636.01	1,000.00	1,000.00
Military post, Spokane, Wash.	84,626.67		84,626.67	10,100.50		56.22	1,491.23
Military post, Fort Riley, Kan.	46,869.00		46,869.00	46,760.34		74,528.17	84,626.67
Military post, Bismarck, N. Dak.	40,000.00		40,000.00			108.66	46,869.00
Fort Wayne Military Res- ervation	138.05	21.99	100.04			40,000.00	40,000.00
Improvement of Yellow- stone National Park		18.80	18.80			160.04	160.04
Road to national ceme- tery, Presidio of San Francisco, Cal.		4.68	4.68			18.80	18.80
Total	1,837,845.26	134,776.50	1,972,621.76	874,338.33	130,437.66	961,845.77	1,972,621.76

1898.

Regular supplies	\$2,000,000.00	Mar. 2, 1897	2,153,552.52	2,118,012.21	1,473.16	34,067.15	2,153,552.52
Incidental expenses	600,000.00	do	605,239.19	601,996.63	45.10	8,194.46	605,239.19
Horses for cavalry and ar- tillery							
Barracks and quarters	180,000.00	do	180,122.50	129,852.61		270.89	130,122.50
Transportation of the Army and its supplies	750,000.00	do	755,253.08	695,225.71		86,032.87	755,253.08
Total	2,400,000.00	do	2,428,900.12	2,307,708.64	7,246.46	22,945.02	2,428,900.12

Financial statement for fiscal year ending June 30, 1898—Continued.

Appropriations.	Balance in Treasury undrawn July 1, 1897.	Appropriated.		Placed to credit of appropriations during the year, being the proceeds of sales to officers, etc.	Total to be accounted for.	Remitted to disbursing officers.	Requisitions issued on settlements made at Treasury of claims and accounts.	Amounts charged against appropriations by Treasury transfer warrants.	Amounts carried to surplus fund, set available June 30, 1874.	Balance in Treasury undrawn June 30, 1898, and available for outstanding obligations.	Total accounted for.
		Amount.	Date of act.								
1898—Continued.											
Clothing, camp and garrison equipment		\$1,050,000.00	Mar. 2, 1897	\$234,373.98	\$1,334,373.98	\$1,321,435.91	\$464.68			\$12,473.39	\$1,334,373.98
Construction and repair of hospitals		75,000.00	do	102.33	75,192.33	58,128.04				17,063.85	75,192.33
National cemeteries		100,000.00	June 4, 1897	250.00	100,250.00	89,402.06				10,840.94	100,250.00
Pay of superintendents of national cemeteries		61,880.00	do		61,880.00	61,853.15				26.85	61,880.00
Shooting galleries and ranges		10,000.00			10,000.00					58.77	10,000.00
Quarters for hospital stewards		7,000.00	do	.15	7,000.15	7,000.15					7,000.15
Military posts		420,000.00	June 4, 1897		420,000.00	275,789.10				144,210.90	420,000.00
Repairing roads to national cemeteries		8,000.00	do		8,000.00	6,168.11				1,831.89	8,000.00
Burial of indigent soldiers		2,000.00	do		2,000.00	1,500.00				500.00	2,000.00
Headstones for graves of soldiers		25,000.00	do		25,000.00	23,208.60	15.95			1,775.45	25,000.00
Target range, Jefferson Barracks, Mo.		18,000.00	do		18,000.00	18,000.00					18,000.00
Road to national cemetery, Pensacola, Fla.		10,000.00	do		10,000.00	10,000.00					10,000.00
Road to national cemetery, Presidio of San Francisco, Cal.		5,000.00	do		5,000.00	5,000.00					5,000.00
Road to national cemetery, Springfield, Mo.		2,700.00	do		2,700.00	2,230.60				469.40	2,700.00
Sewerage system, Fortress Monroe, Va.		6,787.75	do		6,787.75	3,393.87				3,393.88	6,787.75
Improvement of Yellowstone National Park		30,000.00	do	.50	30,000.50	30,000.50					30,000.50
Total		7,711,367.75		477,890.31	8,189,258.12	7,879,858.06	9,245.35			340,154.71	8,189,258.12

Appropriations for deficiencies, "Jan. 1, 1899."										
Regular supplies.....	\$1,000,000.00	May 4, 1898							\$900,743.49	\$1,000,000.00
Incidental expenses.....	750,000.00	do							81,915.33	750,000.00
Horses for cavalry and artillery.....	1,500,000.00	do								1,500,125.86
Barracks and quarters.....	300,000.00	do								30,500.00
Transportation of the Army and its supplies.....	6,000,000.00	do								4,638,256.49
Clothing, camp and garrison equipage.....	10,000,000.00	do								4,208,512.87
Total.....	19,550,000.00								11,012,554.18	19,550,960.86
Certified claims.										
Regular supplies.....	1,059.43	July 19, 1897								1,059.43
Incidental expenses.....	725.42	do								725.42
Horses for cavalry and artillery.....	60.00	do								60.00
Barracks and quarters.....	44.00	do								44.00
Transportation of the Army and its supplies.....	3,422.39	do								4,863.99
Horses and other property lost in the military service.....	360.75	do								360.75
Road to national cemetery, Presidio of San Francisco, Cal.....	25.00	do								25.00
Improvement of Yellowstone National Park.....	.78	do								.78
Total.....	7,620.73								6,637.62	13,318.50
Indefinite or special.										
Hospital, Fort Meade, S. Dak.....	423.65									423.65
Military storehouse, Omaha, Nebr.....	11,019.13									11,019.13
Purchase of buildings at military posts.....	9,977.48									9,977.48
Purchase of land for target ranges, Fort McPherson, Ga.....	3.20									3.20
Payment to John Finn.....	543.11									543.11
Post-office, Fortress Monroe, Va.....	15,000.00									15,000.00
Road to national cemetery at Hampton, Va.....	2,000.00									2,000.00

Financial statement for fiscal year ending June 30, 1898—Continued.

Appropriations.	Balance in Treasury undrawn July 1, 1897.	Appropriated.		Placed to credit of appropriations during the year being the proceeds of sales to officers, etc.	Placed to credit of appropriations by Treasury transfer warrants.	Total to be accounted for.	Remitted to disbursing officers.	Requisitions issued on settlements made at Treasury of claims and accounts.	Amounts charged against appropriations by Treasury transfer warrants.	Amounts carried to surplus fund, act June 30, 1874.	Balance in Treasury undrawn June 30, 1898, and available for outstanding obligations.	Total accounted for.
		Amount.	Date of act.									
<i>Indefinite or special—Con'd.</i>												
Repairing roads to national cemeteries				\$62.71		\$62.71						\$62.71
Military road, Fort Washakie, Wyo.		\$10,000.00	June 4, 1897			10,000.00	\$5,000.00				\$5,000.00	10,000.00
Road to national cemetery, Illinois		3,500.00	July 18, 1897			3,500.00					3,500.00	3,500.00
Road to national cemetery, Presidio of San Francisco, Cal.				100.29		100.29						100.29
Relief of William S. Grant National cemetery, Fort Smith, Ark.		77,989.38	June 30, 1898			77,989.38		\$77,989.38				77,989.38
Relief of Book Agents of the Methodist Episcopal Church South		15,000.00	Jan. 23, 1898			15,000.00	11,110.20				3,889.80	15,000.00
		288,000.00	June 30, 1898			288,000.00		288,000.00				288,000.00
Total	\$38,966.57	394,489.38		163.00		433,618.95	31,091.17	305,989.38		23,162.81	13,375.59	433,618.95
<i>Pacific roads.</i>												
1895 and prior years					\$38.65	38.65		38.65				38.65
1896					5,565.13	5,565.13		5,565.13				5,565.13
1897					50,610.71	50,610.71		50,610.71				50,610.71
1898					3,634.77	3,634.77		3,634.77				3,634.77
Total					59,849.26	59,849.26		59,849.26				59,849.26
Grand total.	2,721,591.60	27,661,554.90		631,707.68	59,849.26	31,074,703.63	19,758,620.52	296,231.27	\$245,903.59	153.06	9,860,451.83	31,074,703.63

NOTE.—Of the \$200,000 appropriated by act of Dec. 18, 1897, for "Relief of people in mining regions of Alaska" there has been drawn by this office the sum of \$73,000. Of the \$50,000,000 appropriated by act of Mar. 9, 1898, for "National defense" there has been drawn by this office the sum of \$1,479,897.67.

The records of this office show the following amounts remitted from regular and from indefinite or special appropriations:

Remitted from regular appropriations, fiscal year 1898.

Departments, etc.	Regular supplies.	Incidental expenses.	Horses for cavalry and artillery.	Barracks and quarters.	Transportation of the Army and its supplies.
Department of the East.....	\$293,496.54	\$68,693.75	\$7,500.00	\$109,297.07	\$253,652.26
Department of California.....	207,592.43	53,283.05	7,356.45	66,875.10	231,097.40
Department of the Colorado.....	243,731.50	41,477.63	.....	65,080.74	189,180.29
Department of the Columbia.....	104,686.11	28,805.69	3,796.92	19,211.17	121,338.50
Department of Dakota.....	212,430.64	40,828.58	.....	63,880.83	185,618.66
Old Department of Missouri.....	206,645.54	49,375.57	.....	94,106.21	158,579.66
Department of the Platte.....	150,439.17	80,638.61	.....	33,397.84	110,144.18
Department of Texas.....	69,965.54	22,325.65	.....	22,872.31	85,385.05
New Department of the Missouri.....	55,131.33	8,346.07	.....	5,169.76	30,662.36
Department of the Gulf.....	48,517.16	11,714.40	.....	18,134.36	76,239.43
Department of the Lakes.....	38,000.00	9,636.79	.....	9,482.17	77,500.00
Depot at New York.....	71,419.65	28,205.70	.....	10,355.57	156,829.10
Depot at Philadelphia.....	25,913.62	25,514.64	.....	7,520.75	77,778.85
Depot at Washington.....	29,308.60	28,258.68	.....	7,607.29	214,423.89
Depot at Jeffersonville.....	57,580.14	24,214.96	.....	616.20	102,314.79
Depot at St. Louis.....	12,693.24	18,615.45	.....	3,552.34	101,557.27
Depot at San Francisco.....	34,619.89	14,298.93	.....	9,905.14	37,644.56
Jefferson Barracks, Mo.....	11,018.05	3,585.96	.....	10,508.92	19,068.02
Key West Barracks, Fla.....	6.00	1,223.07	.....	1,700.49	9,051.89
Plattsburg Barracks, N. Y.....	250.00	1,300.00	.....	603.00	2,351.92
Bismarck, N. Dak.....	4.95	25.00	.....	20.00	10.00
Chicago, Ill.....	528.65	4,400.08	111,200.24	577.50	9,322.00
Hot Springs, Ark.....	3,011.00	2,300.00	.....	2.25	1,520.00
New Orleans, La.....	16.60	2,209.50	.....	605.54	4,521.00
Seattle, Wash.....	859.19	3,548.69	.....	1,104.21	9,540.40
Spokane, Wash.....	8,632.75	5,616.74	.....	544.60	21,946.53
Springfield Armory, Mass.....	1,365.00	330.00	.....	.....	.....
West Point, N. Y.....	24,113.33	10,989.34	.....	.....	5,666.00
Willetts Point, N. Y.....	2,251.37	1,871.50	.....	3,302.61	5,553.47
Fort Crook, Nebr.....	2,207.00	1,125.00	.....	18,219.98	3,428.18
Fort Delaware, Del.....	847.07	22.70	.....	2,138.87	899.55
Fort Ethan Allen, Vt.....	6,480.60	3,170.76	.....	8,248.04	14,608.97
Fort Hamilton, N. Y.....	2,428.00	3,501.33	.....	95.50	2,494.87
Fort Hancock, N. J.....	346.75	4,851.83	.....	35.00	2,040.24
Fort Harrison, Mont.....	4,039.84	4,578.00	.....	4,534.30	10,894.00
Fort Monroe, Va.....	.....	.....	.....	.....	.....
Fort Myer, Va.....	282.95	1,596.82	.....	3,409.85	8,597.87
Fort Porter, N. Y.....	4,959.05	8,574.08	.....	34,800.75	5,351.00
Fort Riley, Kans.....	40.50	2,128.31	.....	.....	3,860.00
Fort Sheridan, Ill.....	.....	1,320.81	.....	.....	.....
Fort Wayne, Mich.....	124.69	2,867.37	.....	15,335.52	1,668.00
Fort Yellowstone, Wyo.....	.....	3,016.65	.....	93.52	271.00
Chickamauga National Park, Ga.....	124,196.46	8,071.44	.....	13,819.74	28,000.00
Headquarters in the field.....	.....	10,500.00	.....	.....	500.00
Mobile, Ala., Maj. Geo. E. Pond.....	5,000.00	1,146.66	.....	100.00	.....
Mobile, Ala., Maj. J. W. Pullman.....	34,240.00	339.67	.....	812.50	.....
San Antonio, Tex., Capt. R. E. Stevens.....	3,500.00	1,000.00	.....	500.00	60,000.00
Tampa, Fla., Maj. J. W. Pope.....	.....	150.00	.....	78.87	.....
Tampa, Fla., Maj. D. D. Wheeler.....	5,000.00	6,183.33	.....	.....	2,000.00
Tokio, Japan, U. S. military attaché.....	190.50	26.00	.....	140.00	.....
Allegheny Arsenal, Pa.....	438.51	.....	.....	.....	119.29
Augusta Arsenal, Ga.....	547.65	6.00	.....	.....	99.77
Benicia Arsenal, Cal.....	1,691.67	89.85	.....	.....	659.58
Columbia Arsenal, Tenn.....	808.38	24.50	.....	.....	259.33
Frankford Arsenal, Pa.....	70.00	.....	.....	.....	999.96
Indianapolis Arsenal, Ind.....	316.73	.....	.....	.....	.....
Kennebec Arsenal, Me.....	776.92	8.25	.....	.....	.....
Rock Island Arsenal, Ill.....	1,111.46	653.25	.....	.....	932.47
Watertown Arsenal, Mass.....	1,713.22	266.19	.....	.....	1,385.56
Watervliet Arsenal, N. Y.....	2,426.25	155.20	.....	.....	89.53
Total.....	2,118,012.31	601,999.63	129,852.61	600,325.71	2,397,708.64

Remitted from regular appropriations, fiscal year 1898—Continued.

Departments, etc.	Clothing and equipage.	Construction and repair of hospitals.	National cemeteries.	Pay of superintendents of national cemeteries.	Shooting galleries and ranges.	Quarters for hospital stewards.
Department of the East	\$30,130.80	\$9,708.55	.....	.....	\$3,306.94	\$1,431.53
Department of California	100,570.00	487.83	.....	.....	130.04	12.25
Department of the Colorado	610.00	2,486.14	.....	.....	1,115.11	149.54
Department of the Columbia	5,268.00	765.49	.....	.....	157.73	58.13
Department of Dakota	1,153.25	1,954.32	.....	.....	844.74	122.88
Old Department of Missouri	998.20	8,544.29	\$15.00	.....	8,335.15	2,128.00
Department or the Platte	444.00	853.24	.....	.....	249.20	116.77
Department of Texas	230.00	2,650.68	.....	.....	1,052.33	2,920.29
New Department of the Missouri	1,916.81	1,234.00	.....	.....	250.00	60.76
Department of the Gulf	60.00	490.60	.....	.....	.....	.....
Department of the Lakes	48,688.00	860.27	.....	.....	.....	.....
Depot at New York	81.50	.....	1,796.37	\$837.50	.....	.....
Depot at Philadelphia	960,074.85	.....	2,336.65	2,280.00	.....	.....
Depot at Washington	1,158.75	.....	43,945.23	21,963.83	.....	.....
Depot at Jeffersonville	60,681.73	.....	8,573.25	3,840.00	.....	.....
Depot at St. Louis	64,817.52	.....	11,025.16	10,671.82	.....	.....
Depot at San Francisco	36,673.87	.....	762.42	720.00	.....	.....
Hot Springs, Ark. ....	.....	600.00	.....	.....	.....	.....
New Orleans, La.	6,425.00	.....	25,654.53	21,540.00	.....	.....
Seattle, Wash.	1,300.38	.....	.....	.....	.....	.....
Willets Point, N. Y.	40.00	.....	.....	.....	.....	.....
Fort Delaware, Del. ....	.....	918.50	.....	.....	.....	.....
Fort Hamilton, N. Y. ....	.....	17,858.41	.....	.....	.....	.....
Fort Hancock, N. J. ....	.....	10,015.40	.....	.....	.....	.....
Fort Wayne, Mich. ....	.....	4,071.26	.....	.....	.....	.....
Rock Island Arsenal, Ill.	43.25	.....	800.45	.....	.....	.....
Watertown Arsenal, Mass.	10.00	.....	.....	.....	.....	.....
Total	1,321,435.91	58,128.98	89,409.06	61,853.15	9,941.33	7,000.15

Departments, etc.	Military posts.	Repairing roads to national cemeteries.	Headstones for graves of soldiers.	Burial of indigent soldiers.	Road to national cemetery, Pensacola, Fla.	Road to national cemetery, Springfield, Mo.
Department of the East .....	.....	.....	\$20,775.80	.....	.....	.....
Department of Dakota	\$20,000.00	.....	.....	.....	.....	.....
Depot at New York .....	.....	.....	1,982.80	.....	.....	.....
Depot at Washington .....	.....	\$3,872.77	450.00	\$1,503.00	\$10,000.00	.....
Depot at St. Louis .....	.....	937.00	.....	.....	.....	\$2,230.60
Jefferson Barracks, Mo.	79,035.50	.....	.....	.....	.....	.....
Plattsburg Barracks, N. Y.	94.60	.....	.....	.....	.....	.....
New Orleans, La. ....	.....	1,258.34	.....	.....	.....	.....
Spokane, Wash.	55,532.00	.....	.....	.....	.....	.....
Willets Point, N. Y.	17,098.40	.....	.....	.....	.....	.....
Fort Ethan Allen, Vt.	69,983.60	.....	.....	.....	.....	.....
Fort Hamilton, N. Y.	125.00	.....	.....	.....	.....	.....
Fort Hancock, N. J.	3,775.00	.....	.....	.....	.....	.....
Fort Harrison, Mont.	30,000.00	.....	.....	.....	.....	.....
Fort Myer, Va.	95.00	.....	.....	.....	.....	.....
Fort Wayne, Mich.	100.00
Total	275,789.10	6,168.11	23,208.60	1,500.00	10,000.00	2,230.60

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Remitted from regular appropriations, fiscal year 1898—Continued.

Departments, etc.	Road to the national cemetery, Presidio of San Francisco, Cal.	Target range, Jefferson Barracks, Mo.	Improvement of Yellowstone National Park.	Sewerage system, Fortress Monroe, Va.	Total.
Department of the East.....					\$797,993.24
Department of California.....					967,404.55
Department of the Colorado.....					543,830.95
Department of the Columbia.....					284,116.74
Department of Dakota.....					475,831.40
(Old Department of Missouri)					520,727.03
Department of the Platte.....					326,415.01
Department of Texas.....					206,901.84
New Department of the Missouri.....					102,771.09
Department of the Gulf.....					155,155.95
Department of the Lakes.....					183,667.23
Depot at New York.....					271,508.19
Depot at Philadelphia.....					1,101,419.36
Depot at Washington.....					362,589.04
Depot at Jeffersonville.....					252,821.07
Depot at St. Louis.....		\$18,000.00			244,100.40
Depot at San Francisco.....	\$5,000.00				139,624.81
Jefferson Barracks, Mo.....					123,216.45
Key West Barracks, Fla.....					11,981.45
Plattsburg Barracks, N. Y.....					4,599.52
Bismarck, N. Dak.....					59.95
Chicago, Ill.....					126,028.47
Hot Springs, Ark.....					7,433.25
New Orleans, La.....					62,230.51
Seattle, Wash.....					16,412.87
Spokane, Wash.....					92,272.03
Springfield Armory, Mass.....					1,695.00
West Point, N. Y.....					40,768.67
Willetts Point, N. Y.....					30,117.35
Fort Crook, Nebr.....					24,680.16
Fort Delaware, Del.....					4,826.69
Fort Ethan Allen, Vt.....					102,441.97
Fort Hamilton, N. Y.....					26,503.11
Fort Hancock, N. J.....					21,064.22
Fort Harrison, Mont.....					54,044.14
Fort Monroe, Va.....				\$3,593.87	3,393.87
Fort Myer, Va.....					13,982.49
Fort Porter, N. Y.....					48,484.88
Fort Riley, Kans.....					6,028.81
Fort Sheridan, Ill.....					1,320.81
Fort Wayne, Mich.....					24,166.84
Fort Yellowstone, Wyo.....			\$30,000.50		33,381.67
Chickamunga National Park, Ga.....					174,087.64
Headquarters in the field.....					11,000.00
Mobile, Ala., Maj. Geo. E. Pond.....					6,246.66
Mobile, Ala., Maj. J. W. Pullman.....					35,392.17
San Antonio, Tex., Capt. R. R. Stevens.....					65,000.00
Tampa, Fla., Maj. J. W. Pope.....					228.67
Tampa, Fla., Maj. D. D. Wheeler.....					13,183.33
Tokio, Japan, U. S. military attaché.....					356.50
Allegheny Arsenal, Pa.....					557.80
Angusta Arsenal, Ga.....					653.42
Benicia Arsenal, Cal.....					2,441.10
Columbia Arsenal, Tenn.....					1,092.21
Frankford Arsenal, Pa.....					1,069.96
Indianapolis Arsenal, Ind.....					316.73
Kennebec Arsenal, Me.....					780.17
Rock Island Arsenal, Ill.....					3,090.90
Watertown Arsenal, Mass.....					3,374.97
Watervliet Arsenal, N. Y.....					2,670.97
Total.....	5,000.00	18,000.00	30,000.50	3,393.87	7,839,858.06

Remitted from indefinite or special appropriations up to June 30, 1898.

Departments, etc.	National defense (war), under allotments approved Apr. 1 and 19, 1898.	Relief of people in mining regions of Alaska.	Post-office, Fortress Monroe, Va.	Military road, Fort Washakie, Wyo.	National cemetery, Fort Smith, Ark.	Total.
Department of the East	\$864. 73					\$864. 73
Department of the Colorado	20,000. 00					20,000. 00
Department of the Columbia	25,000. 00	\$5,000. 00				30,000. 00
Department of Dakota	94,978. 56					94,978. 56
Department of the Missouri	10,000. 00			\$5,000. 00		15,000. 00
Department of the Lakes	91,835. 27					91,835. 27
Department of the Gulf	25,194. 74					25,194. 74
Depot at New York	50,499. 80					50,499. 80
Depot at Philadelphia	100,000. 00					100,000. 00
Depot at Washington	40,000. 00	67,000. 00				107,000. 00
Depot at Jeffersonville	20,408. 00				\$11,110. 20	31,518. 20
Depot at St. Louis	500,000. 00					500,000. 00
New Orleans, La.	49,600. 00					49,600. 00
Chicago, Ill.	50,000. 00					50,000. 00
Headquarters in the field, Col. C. F. Humphrey	10,000. 00					10,000. 00
Mobile, Ala., Maj. Geo. E. Pond	20,000. 00					20,000. 00
Mobile, Ala., Maj. J. W. Pullman	1,762. 59					1,762. 59
Chickamauga National Park, Ga., Col. J. G. C. Lee	78,182. 65					78,182. 65
Tampa, Fla., Maj. J. W. Jacobs	100,000. 00					100,000. 00
Tampa, Fla., Maj. J. W. Pope	176,771. 33					176,771. 33
Tampa, Fla., Maj. D. D. Wheeler	15,000. 00					15,000. 00
Fort Monroe, Va.			\$14,980. 97			14,980. 97
Total	1,479,897. 07	72,000. 00	14,980. 97	5,000. 00	11,110. 20	1,582,988. 24

Remitted from appropriations for deficiencies entitled "January 1, 1899," up to June 30, 1898.

Departments, etc.	Regular supplies.	Incidental expenses.	Horses for cavalry and artillery.	Barracks and quarters.	Transportation of the Army and its supplies.	Clothing and equipage.	Total.
Department of the East		\$516. 66			\$304. 01	\$110,008. 98	\$110,829. 05
Department of California	\$25,242. 75		\$55,000. 00		64,386. 83		144,029. 58
Department of the Colorado	4,647. 02	3,655. 33	100,000. 00		77,922. 40		186,224. 75
Department of the Columbia	532. 65				15,114. 46		15,647. 11
Department of Dakota		261. 67	134,340. 00		140,099. 86	27,714. 75	302,416. 28
Department of the Missouri							
Department of the Gulf	22,405. 91	3,186. 21	13,000. 00		10,000. 00	2,450. 00	12,450. 00
Department of the Lakes		2,255. 55	291,880. 00		59,391. 30	14,850. 00	112,833. 42
Depot at New York	51,664. 06	11,114. 32	5,000. 00	\$10,000. 00	266,237. 00	231,161. 48	851,534. 03
Depot at Philadelphia			26,620. 00		1,421,430. 60	1,209,842. 05	2,709,051. 02
Depot at Washington	53,357. 00	7,000. 00		8,000. 00	21,016. 66	1,709,808. 35	1,768,945. 01
Depot at Jeffersonville	104,968. 11		20,250. 00		458,755. 26	1,500. 00	528,612. 26
Depot at St. Louis	44,156. 00	4,818. 00			119,332. 82	37,021. 57	281,572. 50
Depot at San Francisco	25,000. 00	5,000. 00		1,200. 00	1,312,518. 86	33,505. 92	1,394,998. 78
Key West Barracks, Fla.	147. 00	333. 33			81,088. 11	635,620. 77	747,908. 88
Chicago, Ill.	987. 00	213. 33	229,000. 00		18,904. 49		19,384. 82
New Orleans, La.	13,275. 00				174,491. 00		404,091. 33
Fort Ethan Allen, Vt.		125. 00			134,200. 03	1,120. 50	148,596. 50
Fort Riley, Kans.					5,534. 40		5,659. 40
Fort Wayne, Detroit, Mich.		425. 83			60. 00		60. 00
Chickamauga National Park, Ga.			151,285. 00			10,000. 00	10,425. 83
Headquarters in the field, Col. C. F. Humphrey		5,000. 00			193,260. 85	1,090. 00	345,635. 85
Mobile, Ala., Maj. Geo. E. Pond	5,000. 00	2,500. 00		500. 00	5,000. 00		10,000. 00
Mobile, Ala., Maj. J. W. Pullman	44,361. 00	560. 00		200. 00	31,800. 00		39,800. 00
San Antonio, Tex., Capt. R. R. Stevens			131,250. 00		22,500. 00		67,621. 00
Total							131,250. 00

Remitted from appropriations for deficiencies entitled "January 1, 1899," up to June 30, 1898—Continued.

Departments, etc.	Regular supplies.	Incidental expenses.	Horses for cavalry and artillery.	Barracks and quarters.	Transportation of the Army and its supplies.	Clothing and equipage.	Total.
Tampa, Fla., Capt. A. G. C. Quay	\$30,000.00	\$25,000.00	.....	\$10,000.00	\$35,000.00	.....	\$200,000.00
Tampa, Fla., Capt. J. B. Bellinger	120,000.00	1,000.00	.....	.....	161,815.00	.....	282,815.00
Tampa, Fla., Maj. D. D. Wheeler .....	.....	.....	.....	.....	18,316.67	.....	18,316.67
Baltimore, Md., Lieut. C. D. Palmer .....	.....	.....	.....	.....	.....	\$122,119.50	122,119.50
Jacksonville, Fla., Capt. F. Von Schrader	5,000.00	800.00	.....	.....	3,000.00	1,200.00	10,000.00
St. Asaph, Va., Capt. E. H. Parsons .....	.....	8,050.10	.....	600.00	24,150.10	.....	32,800.20
Hospital ship Relief, Lieut. J. T. Crabbs .....	.....	100.00	.....	.....	6,425.81	.....	6,525.81
Columbia Arsenal, Tenn .....	.....	.....	.....	.....	1,200.00	.....	1,200.00
Total	600,743.49	81,915.33	1,157,625.00	30,500.00	4,933,256.49	4,208,513.87	11,012,554.18

In addition to the foregoing remittances made during the fiscal year 1898, the following are the amounts supplied to disbursing officers and paid on account of Treasury settlements from the 1st July to August 15, 1898, inclusive:

	Remitted to disbursing officers.	Treasury settlements.
<i>1898.</i>		
Regular supplies	\$63,038.98	.....
Incidental expenses	11,285.97	.....
Barracks and quarters	53,910.65	.....
Transportation of the Army and its supplies	19,365.43	\$8,841.14
Clothing, camp and garrison equipage	17,672.39	.....
National cemeteries	5,457.69	.....
Construction and repair of hospitals	10,296.00	.....
Military posts	73,605.85	.....
Total	254,627.96	8,841.14
<i>Appropriations for deficiencies "January 1, 1899."</i>		
Regular supplies	1,082,364.30	.....
Incidental expenses	350,093.64	.....
Horses for cavalry and artillery	338,938.10	.....
Barracks and quarters	191,978.65	.....
Transportation of the Army and its supplies	12,719,779.38	83,203.55
Clothing, camp and garrison equipage	5,791,528.44	.....
Total	20,474,682.51	33,203.55
<i>1899.</i>		
Construction and repair of hospitals	7,242.15	.....
National cemeteries	20,444.56	.....
Pay of superintendents of national cemeteries	8,809.91	.....
Shooting galleries and ranges	530.06	.....
Quarters for hospital stewards	98.50	.....
Repairing roads to national cemeteries	176.66	.....
Military posts	5,000.00	.....
Sewerage system, Fortress Monroe, Va	6,754.75	.....
Improvement of Yellowstone National Park	5,000.00	.....
Total	53,857.19	.....
Grand total from July 1 to Aug. 15, 1898	20,783,167.66	42,044.69
Aggregate	20,825,212.35	.....

MONEY ACCOUNTS.

The assignment of work under this head consists of the administrative examination of the money accounts of officers serving in the Quartermaster's Department before their transmission to the Auditor for the War Department.

The following is a statement showing the number of accounts received, examined, and forwarded to the Auditor during the fiscal year ending June 30, 1898:

Received during the year ending June 30, 1898.....	2,583
Forwarded to the Auditor for the War Department during the year ending June 30, 1898.....	2,534

RETURNS OF QUARTERMASTER'S SUPPLIES.

Under this head the work consists of the examination of quarterly returns of quartermaster's supplies for the use of the Army; of property for use and protection of Yellowstone Park, and for Apache prisoners of war; of annual returns of contingent-fund property, and of supplies for use of the militia of the several States and Territories and of the District of Columbia.

This branch also takes preliminary action on reports of boards of survey, and inspection reports from quartermaster's depots and independent posts and stations.

The following statement shows the number of returns examined and letters written during the fiscal year ended June 30, 1898, viz:

Returns of quartermaster's supplies for use of the Army.....	1,063
Annual returns of supplies for use of militia	46
Miscellaneous returns above mentioned.....	8
Letters written pertaining to examination and settlements	2,274

The number of clerks employed during the year has averaged about 16.

MAIL AND RECORD DIVISION.

The following communications were received and letters and indorsements mailed—

Original cases	10,316
Received back	52,071
Letters and indorsements mailed	59,200

MISCELLANEOUS CLAIMS AND ACCOUNTS.

There remained on hand at the beginning of the fiscal year awaiting action—

67 miscellaneous claims, amounting to.....	\$13,868.20
14 accounts, amounting to.....	5,328.63

There were received during the year—

200 miscellaneous claims, amounting to.....	63,436.87
246 accounts, amounting to	12,165.90

Total, 527 claims and accounts, amounting to.....	94,797.60
---	-----------

Final action was taken on these, as follows:

18 claims were referred to other Departments	\$6,272.34
123 claims were sent to Treasury Department for settlement	26,959.12
99 claims were rejected	30,354.98
Reduction on claims referred.....	7,226.73
208 accounts were approved for payment of.....	13,286.90
Reduction on accounts approved	95.00
5 accounts were referred to other Departments	1,914.23
11 accounts were rejected, amounting to.....	292.94
<hr/>	
Total upon which final action was taken: 240 claims and 224 accounts, amounting to	86,402.24

On July 1, 1898, there were on hand awaiting action—

27 claims, amounting to.....	\$6,491.90
36 accounts, amounting to.....	1,903.46
<hr/>	
Total, 63 claims and accounts	8,395.36

CLAIMS UNDER ACT OF JULY 4, 1864.

There remained in this office on July 1, 1898, not finally acted upon, 96 claims presented under the act of July 4, 1864, amounting to \$119,299.57; the papers of one of this class of claims, amounting to \$1,368.80, having been transmitted to the Court of Claims during the year. Action upon these claims has been suspended awaiting additional evidence.

The papers pertaining to 3 claims, amounting to \$440.20, which had previously been investigated and disallowed by the Quartermaster-General, were, during the year, transmitted to the Committee on War Claims, House of Representatives; and the papers pertaining to 38 of such claims, amounting to \$32,815.84, were transmitted to the Court of Claims, or to the Department of Justice, for use as evidence in such cases as had been appealed to the Court of Claims under provisions of the law of March 3, 1883, known as the Bowman Act.

NEWSPAPERS AND PERIODICALS.

During the fiscal year newspapers and periodicals have been supplied for the enlisted men of the Army at 97 military-post libraries at a cost of \$3,295.64. These posts were garrisoned by 388 companies or detachments.

PRINTING AND BINDING.

During the fiscal year 666 requisitions were made on the Public Printer for printing and binding. The cost for the work, so far as bills have been received, is \$29,921.16, which sum does not include the cost of work done in the War Department branch printing office.

NATIONAL CEMETERIES.

The national cemeteries are classed as follows:

First class	25
Second class	20
Third class	16
Fourth class.....	22
<hr/>	
Total	83

The interments therein to June 30, 1898, are:

Known.....	186,409
Unknown.....	150,887
Total.....	337,296

There are 75 superintendents, the total number authorized. Changes during the year: Appointed, 4; discharged, 2; resigned, 1; died, 1. Two assistant superintendents are serving on probation preparatory to appointment as superintendents when vacancies occur.

Removal of remains of soldiers buried in inappropriate places to permanent post or national cemeteries were as follows:

From—	To national or post cemeteries.	Num- ber.
Peola, Wash.....	Fort Walla Walla, post cemetery.....	1
Wilsons Creek, Missouri.....	Springfield, Mo., National Cemetery.....	1
Fort Concho, Tex.....	San Antonio, Tex., National Cemetery.....	17
San Antonio, Tex.....	do.....	8
Pringle, S. Dak.....	Custer Battlefield, Montana National Cemetery.....	1
Sharpsburg, Md.....	Antietam, Md., National Cemetery.....	1
Hurley, Tenn.....	Shiloh, Tenn., National Cemetery.....	1
Total removed.....		25

Headstones.—Ten thousand white marble headstones were provided to mark the graves of known Union soldiers, sailors, and marines in national, post, city, and village cemeteries.

Indigent soldiers.—Under the acts of Congress (sundry civil) making appropriations for “Expenses of burying in the Arlington National Cemetery, or in the cemeteries of the District of Columbia, indigent ex-Union soldiers, sailors, and marines of the late civil war who died in the District of Columbia,” claims for the burial of 41 such persons have been paid, at a total cost of \$1,585.50.

Roadways.—The roadway authorized by Congress June 8, 1896, from the north side of Cache River Bridge, in Pulaski County, Ill., to connect with the graveled road running from Mound City, Ill., to the Illinois Central Railroad in said county, was completed at a total cost of \$14,995.87. Length of road, 4,960 feet. During the year this road was seriously damaged by high water, and is now being repaired.

Under the act of Congress (sundry civil) approved June 4, 1897, appropriating the sum of \$2,700 “For the construction and completion of an extension of Phelps boulevard, the Government road from Springfield, Mo., to the national cemetery near that city,” the work has been completed at a total cost of \$2,230.60. Length of extension, 834 feet.

Under the acts of Congress (sundry civil) making appropriations for “Repairing roadways to national cemeteries which have been constructed by special authority of Congress,” repairs have been made to the roadways leading to the national cemeteries at Alexandria, Va.; Antietam, Md.; Corinth, Miss.; Culpeper, Va.; Fayetteville, Ark.; Florence, S. C.; Fredericksburg, Va.; Marietta, Ga.; Mound City, Ill.; Natchez, Miss.; Newbern, N. C.; Port Hudson, La.; Richmond, Va.; Staunton, Va., and Vicksburg, Miss. Amount expended, \$5,159.66.

Memorial Day (May 30) was observed at the several national cemeteries by appropriate services, conducted by the Grand Army of the Republic and similar organizations, assisted by school children and citizens.

Improvements and repairs of national cemeteries.—At the Andersonville, Ga., National Cemetery the lodge was repaired and drainage provided for protection of the foundation.

At the Antietam, Md., National Cemetery necessary repairs were made to the lodge, an addition of two rooms made to the stone outbuilding, and a new wooden flagstaff 100 feet in length erected.

At the Arlington, Va., National Cemetery 3,770 linear feet of blue-stone wall on the west and south lines of the cemetery, contracted for during the previous fiscal year, and 1,314 linear feet of red sandstone wall on the eastern side of the cemetery, contracted for during the present fiscal year, to inclose the new addition authorized January 11, 1897, have been completed. Necessary repairs were made to the mansion, outbuildings, drainage, water supply, and granolithic pavements, and the grounds kept in excellent condition. A contract was made for a set of ornamental wrought-iron drive and walk gates with stone posts, to be placed at the western (Fort Myer) entrance to the cemetery. The work is now in progress. Contracts have also been made for repointing the inclosing wall on the western side of the cemetery, and for the connecting roadway in the new addition.

At the Baton Rouge, La., National Cemetery the plan for underdraining the lodge, adopted during the previous fiscal year, having been proved satisfactory, the building was thoroughly repaired and the grounds kept in good order.

At the Beaufort, S. C., National Cemetery necessary repairs were made to the lodge and outbuilding, the gates at the principal entrance to the cemetery repaired, and the stone posts reset.

At the Brownsville, Tex., National Cemetery the lodge was repaired and painted, and a shed for fuel constructed.

At the Camp Butler, Ill., National Cemetery necessary repairs were made to the lodge, the inclosing wall repaired and repointed, the flagstaff painted, and the grounds kept in good order.

At the Cave Hill, Ky., National Cemetery an addition of 2,366 square feet of ground adjoining the national cemetery grounds was donated to the United States by the Cave Hill Cemetery Company, Louisville, Ky., for the purpose of erecting thereon a permanent rostrum. This addition was accepted by the Department, and the rostrum, completed May 19, 1898, was dedicated with appropriate ceremonies May 30. Necessary repairs were made to the lodge and outbuilding, and the grounds properly cared for.

At the Chattanooga, Tenn., National Cemetery necessary repairs were made to the lodge and buildings, 1,700 linear feet of the inclosing wall repointed, the driveway resurfaced with gravel, and the water supply increased by connection with the city main.

At the Corinth, Miss., National Cemetery the lodge and inclosing wall were repaired and a contract awarded for the construction of an addition to the outbuilding. The work is now in progress.

At the Cypress Hills, N. Y., National Cemetery the lodge and outbuildings were repaired and the drainage improved by connection with the city sewerage.

At the Fredericksburg, Va., National Cemetery necessary repairs were made to the buildings and grounds and the water supply increased by connection with the city main.

At the Finns Point, N. J., National Cemetery repairs were made to the lodge, inclosing wall, and approach road, and a frame stable erected.

At the Fort Gibson, Ind. T., National Cemetery repairs were made to the lodge, cistern house, and inclosing wall, and a stone outbuilding erected to replace a frame structure destroyed by fire May 28, 1897.

At the Fort Leavenworth, Kans., National Cemetery necessary repairs were made, the grounds kept in good order, and the trellis roof of the rostrum renewed.

At the Fort Smith, Ark., National Cemetery, on the night of January 11, 1898, the cemetery was visited by a tornado, which totally destroyed the lodge and outbuilding, damaged the rostrum and iron flagstaff, and in part destroyed the brick inclosing wall, uprooted trees, and overturned and damaged a number of headstones and monuments, the total destruction being estimated at about \$17,000. Under a special appropriation (\$15,000) approved January 28, 1898, contracts were made for rebuilding the lodge and outbuilding and providing the necessary water supply and drainage therefor, repairing and in part reconstructing the inclosing wall, and providing a set of ornamental wrought-iron drive and walk gates for the principal entrance, repairing the rostrum and flagstaff, and repairing and resetting the broken monuments. The rostrum and flagstaff have been repaired, and the remainder of the work is in progress. Amount expended to June 30, 1898, \$748.15.

At the Jefferson Barracks, Mo., National Cemetery the lodge was repaired and painted and the grounds properly cared for, an iron gate provided for an entrance on the western side of the cemetery, and a frame privy erected for public use. An additional water supply was also provided by connection with the 4-inch water pipe supplying the military post of Jefferson Barracks.

At the Jefferson City, Mo., National Cemetery necessary repairs were made and the sidewalk in front of the cemetery graded and paved.

At the Knoxville, Tenn., National Cemetery necessary repairs were made, the trellis roof of rostrum renewed, the water supply increased by connection with the city service, and the grounds properly cared for. A contract was made for construction of a brick outbuilding to replace an old frame structure. The building was completed since the close of the fiscal year.

At the Little Rock, Ark., National Cemetery the lodge was thoroughly repaired, a new sidewalk constructed, and the inclosing wall repaired and repointed.

At the Mobile, Ala., National Cemetery necessary repairs were made, and the old brick wall separating the National from Magnolia Cemetery on the north, west, and east sides removed.

At the Natchez, Miss., National Cemetery necessary repairs were made to the office and outbuilding, and a wooden flagstaff 75 feet in length, contracted for during the previous fiscal year, erected. A contract was made for a brick addition of two rooms to the superintendent's lodge, which was completed since the close of the fiscal year.

At the Newbern, N. C., National Cemetery necessary repairs were made, and a new wooden flagstaff 75 feet in length erected. An addition of two rooms to the superintendent's lodge was authorized, and the work is in progress.

At the Philadelphia, Pa., National Cemetery repairs were made to the mansion, the avenues macadamized, and the grounds kept in good order. The water supply was increased by connection with the city service, the old windmill removed, and the well filled up and the ground graded.

At the Richmond, Va., National Cemetery necessary repairs were made and the grounds kept in good order. A contract was made for a brick addition of two rooms to the superintendent's lodge. The work is in progress.

At the Rock Island, Ill., National Cemetery the iron fence inclosing the cemetery was repaired and painted, the walks improved, and the grounds put in order.

At the San Francisco, Cal., National Cemetery necessary repairs

were made and the grounds and walks kept in good order. Memorial Day was observed by the Regular Army and Navy Union, George H. Thomas Post, G. A. R., and the troops at the Presidio.

At the Santa Fe, N. Mex., National Cemetery the coping of the stone inclosing wall was repointed, and an additional supply of water obtained for irrigating purposes from the Santa Fe Water and Improvement Company.

At the Staunton, Va., National Cemetery a contract was awarded for construction of an additional story, containing three rooms, to the superintendent's lodge. The work is now in progress, to be completed at an early date.

At the Soldiers' Home, District of Columbia National Cemetery, repairs were made to the lodge and outbuilding, 850 linear feet of the stone inclosing wall repaired, and additional drainage provided for a new burial section.

At the Winchester, Va., National Cemetery repairs were made to the lodge and outbuilding, 175 linear feet of the north inclosing wall rebuilt, and a brick privy erected for public use.

At all other national cemeteries necessary repairs were made and the grounds properly cared for.

A statement showing the expenditures on account of the several national cemeteries is submitted herewith, marked A.

Respectfully submitted.

JAS. M. MOORE,

Assistant Quartermaster-General, United States Army.

THE QUARTERMASTER-GENERAL OF THE ARMY.

A.—Disbursements of appropriations for national cemeteries for the fiscal year ended June 30, 1898.

Name of cemetery.	Amount.	Name of cemetery.	Amount.
Alexandria, La	\$487.32	Fort Leavenworth, Kans	\$1,164.71
Alexandria, Va	659.57	Fort McPherson, Nebr	523.81
Andersonville, Ga	1,014.53	Fort Scott, Kans	427.84
Annapolis, Md	312.67	Fort Smith, Ark	723.45
Antietam, Md	1,145.90	Fredericksburg, Va	1,015.00
Arlington, Va	35,183.79	Gettysburg, Pa	1,144.00
Balls Bluff, Va	25.00	Glendale, Va	91.15
Barrancas, Fla	387.35	Grafton, W. Va	284.90
Baton Rouge, La	754.54	Hampton, Va	882.53
Battle Ground, D. C	166.25	Jefferson Barracks, Mo	2,114.44
Beaufort, S. C	985.64	Jefferson City, Mo	339.43
Beverly, N. J	142.42	Keokuk, Iowa	251.70
Brownsville, Tex	616.46	Knoxville, Tenn	708.14
Camp Butler, Ill	502.14	Lebanon, Ky	274.43
Camp Nelson, Ky	406.55	Lexington, Ky	63.00
Cave Hill, Ky	1,747.75	Little Rock, Ark	1,814.40
Chalmette, La	1,157.61	London Park, Md	547.85
Chattanooga, Tenn	2,876.50	Marietta, Ga	1,476.30
City Point, Va	515.70	Memphis, Tenn	1,923.96
Cold Harbor, Va	232.50	Mexico City, Mex	624.03
Corinth, Miss	1,377.91	Mill Springs, Ky	297.60
Crown Hill, Ind	20.00	Mobile, Ala	249.03
Culpeper, Va	432.72	Mound City, Ill	1,030.42
Custer Battlefield, Mont	583.63	Nashville, Tenn	2,861.35
Cypress Hills, N. Y	1,850.52	Natches, Miss	973.52
Danville, Ky	106.00	New Albany, Ind	338.60
Danville, Va	843.41	Newbern, N. C	616.39
Fayetteville, Ark	522.18	Philadelphia, Pa	1,328.71
Finns Point, N. J	1,130.82	Poplar Grove, Va	500.24
Florence, S. C	237.16	Port Hudson, La	477.23
Fort Donelson, Tenn	335.10	Quincy, Ill	25.00
Fort Gibson, Ind. T	931.70	Raleigh, N. C	327.41
Fort Harrison, Va	189.97	Richmond, Va	821.53

A.—Disbursements of appropriations for national cemeteries for the fiscal year ended June 30, 1898—Continued.

Name of cemetery.	Amount.	Name of cemetery.	Amount.
Rock Island, Ill.....	\$300.45	Stones River, Tenn.....	\$803.82
Salisbury, N. C.....	407.48	Vicksburg, Miss.....	3,127.86
San Antonio, Tex.....	159.21	Wilmington, N. C.....	313.09
San Francisco, Cal.....	762.42	Winchester, Va.....	943.59
Santa Fe, N. Mex.....	737.57	Woodlawn, N. Y.....	76.86
Seven Pines, Va.....	210.16	Yorktown, Va.....	156.06
Shiloh, Tenn.....	749.23	Soldiers' lots.....	217.35
Soldiers' Home, D. C.....	1,898.68	Miscellaneous.....	614.21
Springfield, Mo.....	354.68		
St. Augustine, Fla.....	75.00	Total.....	94,700.16
Staunton, Va.....	222.85		

The balance of the appropriation (\$100,000) is placed to the credit of officers of the Quartermaster's Department, and is required for the payment of outstanding indebtedness.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 28, 1898.

GENERAL: I have the honor to submit herewith the following report of the operations of the transportation division of this office during the fiscal year ended June 30, 1898.

Up to June last this division had charge of the supply of all means of transportation for the Army, together with cavalry and artillery horses, wagons, ambulances and vehicles, draft and pack animals, and all the articles necessary to the proper equipment of the same. Owing to the emergency of the war with Spain greatly increasing the demand for all these articles, the duties of this branch were divided by the Quartermaster-General in June, and the supply of means of transportation put under the supervision of Col. C. P. Miller, whose report will cover the operations for the entire fiscal year.

The present report of the transportation division will, therefore, be confined to rail and water transportation and telegraph and telephone matters, which also pertain to the duties of the officer in charge of this division.

The following statement shows that during the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of material:

	Railroad.	Water.	Wagon.	Stage.	Government vessels.	Total.
Passengers:						
Officers.....	15,661	701	32	116	34,124	50,664
Men.....	244,675	7,612	4	1,064	405,598	658,953
Total.....	260,366	8,313	36	1,180	439,722	709,617
Animals:						
Horses.....	30,135	1,040			1,708	32,883
Mules.....	25,520	236			1,993	27,749
Total.....	55,655	1,276			3,701	60,632
Stores, tons:						
Subsistence.....	136,491	6,379	3,286		5,351	151,507
Quartermaster.....	66,994	2,008	19,795		3,519	92,316
Ordnance.....	444,066	684,333	1,320		2,504	1,132,228
Medical.....	796	314	326		112	1,548
Signal service.....	2,479	607	19		42	3,147
Miscellaneous.....	141,392	1,841	4,919		687	148,839
Total.....	792,218	695,481	29,671		12,215	1,529,585

SUMMER ENCAMPMENT AND RIFLE COMPETITION.

From reports received it is shown that there was expended during the fiscal year 1898, in the transportation of troops in connection with summer encampments, practice marches, field maneuvers, and instructions, the sum of \$26,399.54; also for the transportation of enlisted men, to engage in rifle competition and target practice, the sum of \$10,526.80.

Where expended.	Summer camps.	Rifle competition.
Department of California	\$8,563.62	\$71.24
Department of the Colorado	2,072.35	2,581.30
Department of the Columbia	97.35	.....
Department of Dakota	4,313.29	1,205.14
Department of the East	3,488.84	1,599.24
Department of the Gulf	333.30	.....
Department of the Lakes	3,563.86	2,306.01
Department of the Missouri	3,966.93	2,763.87
Total	26,399.54	10,526.80

ACCOUNTS AND CLAIMS FOR TRANSPORTATION.

The records show that 4,729 accounts and claims for transportation, amounting to \$227,765.87, have been received, examined, and transmitted for settlement during the fiscal year ended June 30, 1898, exclusive of the extraordinary movement of troops incidental to the war with Spain.

Of these, 633 accounts, amounting to \$55,242.37, were chargeable to appropriations of the War Department for the several fiscal years in which the service was rendered; 2,403 accounts of other Departments, amounting to \$38,128.33, exclusive of bond-aided service and telegraph accounts.

Bond-aided Pacific railroad companies.

Railroad companies.	Passengers.	Animals.	Freight.
Union Pacific Rwy. Co.'s system	1,232	354	<i>Pounds.</i> 6,175,902
Southern Pacific Company, Central Pacific R. R. Co	19,576	1,043	25,750,661
Sioux City and Pacific R. R. Co	1,200	728	4,870,668
Missouri Pacific R. R. Co. (Central Branch Union Pacific) .....	.....	.....	2,610
Total	22,008	2,125	36,799,841

There were 1,693 accounts for bond-aided service received at this office, amounting to \$134,395.17. Of these, 766 accounts were chargeable to appropriations of the War Department, amounting to \$103,154.67, and 927 accounts for other Departments, amounting to \$31,240.50, as shown by the following table:

Railroad companies.	Number of accounts.	Amount.	Subsidized.	Unsubsidized.	Remarks.
Union Pacific Rwy. Co	171	\$35,375.90	\$31,924.65	\$3,451.25	War Department.
Do	375	12,541.46	3,412.09	9,129.37	Other Departments.
Southern Pacific Co.	535	67,230.61	22,596.44	44,634.17	War Department.
Do	540	16,388.00	12,307.84	4,080.16	Other Departments.
Sioux City and Pacific	60	548.16	513.57	34.59	War Department.
Do	12	2,311.04	2,310.83	.21	Other Departments.
Grand total	1,693	134,395.17	73,065.42	61,329.75	

SALE OF THE UNION AND KANSAS PACIFIC RAILROAD.

The main line of the Union Pacific Railroad Company ceased to be a bond-aided road November 1, 1897, under following Treasury Circular, No. 187 of 1897, and the Kansas Division ceased to be bond-aided March 31, 1898, under following Treasury Circular, No. 83 of 1898:

[Treasury Circular No. 187.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY, *Washington, November 11, 1897.*

By the terms of an agreement recently entered into between the Secretary of the Treasury and the Union Pacific organization committee for the settlement and payment in full to November 1, 1897, of the indebtedness of the Union Pacific Railway Company to the United States, all claims for services rendered by said company to the United States remaining unsettled or unpaid on November 1, 1897, and all claims for like services thereafter rendered, are required to be paid to the company in cash.

In order, therefore, to facilitate the adjustment of matters involved in such settlement and to carry into full effect the terms of said agreement, it is hereby ordered that all pending claims for transportation services heretofore rendered by said company to the United States, and all claims for like services hereafter rendered, shall be settled by the accounting officers in favor of said company without reference to bond and interest account or to the requirements of the sinking fund created by the act of May 7, 1878.

The provisions of Department Circular No. 45, of March 9, 1895, are hereby modified accordingly.

L. J. GAGE, *Secretary.*

[Treasury Circular No. 83.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY, *Washington, May 17, 1898.*

Department Circular No. 67 of 1898 is hereby amended to read as follows:

"The Kansas Pacific Railroad having been sold under a recent decree of the United States circuit court for the district of Nebraska, and the principal of its bonded indebtedness to the United States, amounting to \$6,303,000, having been paid into the Treasury under the terms of the sale, it is hereby ordered that one-half of the amount of compensation for services rendered to the United States by the Kansas Pacific Railroad Company over the bond-aided portion of its line prior to and including March 31, 1898, the date of the delivery of the road to its present owners, shall be withheld and covered into the Treasury as a reimbursement to the United States for interest paid on the bonded indebtedness of the company. Compensation for like services rendered after the date referred to shall be paid to the company in cash, without reference to its interest account with the United States."

The provisions of Department Circular No. 45, of March 9, 1895, are hereby modified accordingly.

L. J. GAGE, *Secretary.*

TELEGRAPH ACCOUNTS.

The accounts for telegraphic service examined by this office and transmitted for settlement were 291, amounting to \$4,889.99.

VESSELS OWNED BY QUARTERMASTER'S DEPARTMENT.

This Department has kept in service, at points named, where constant use is required, 11 steamboats, which it owns. The cost of maintaining these, including repairs, during the fiscal year 1898, was \$90,757.34. This statement is exclusive of transports purchased for prosecution of the war with Spain.

Name.	Class.	Tonnage.	When purchased or built.	Cost or estimated value.
General Meigs	Propeller	175	May 11, 1892	\$64,436.48
Ordnance	do	97	Sept. 1, 1883	27,870.80
Atlantic	Steam tug	60.31	Oct. 15, 1878	13,865.56
Resolute	do	70.30	Nov. 14, 1879	17,947.48
Monroe	Steam launch	62.36	Nov. 30, 1895	15,200.00
Thayer	do	32.86	Oct. 8, 1874	7,200.00
General Hancock	Ferryboat	171.06	Apr. 1, 1896	31,165.00
General Rufus Ingalls	Alco-vapor launch .....	.....	July 20, 1896	4,950.00
General D. H. Rucker	do .....	.....	.....	4,950.00
Hamilton	Steam launch	37.68	Feb. 1, 1875	7,800.00
General McDowell	Propeller	160	Nov. 17, 1886	56,150.00

Name.	By whom employed.	Where employed.	Paid for repairs.	Paid for running expenses.	Total expenses.
General Meigs ..	Depot quartermaster ..	New York Harbor	\$2,155.67	\$13,701.08	\$15,856.75
Ordnance	do	do	454.47	8,164.62	8,623.09
Atlantic	Quartermaster	Governors Island	366.00	9,217.92	9,583.92
Resolute	do	Boston, Mass	10,296.33	8,079.16	18,375.49
Monroe	do	Fort Adams, Mass	1,464.45	4,130.96	5,595.41
Thayer	do	Fort Slocum, Hamilton, Wadsworth, and Schuyler.	127.00	1,012.88	1,139.88
General Hancock	do	Governors Island	153.56	3,211.72	3,365.28
General Rufus Ingalls	do	do .....	.....	.....	.....
General D. H. Rucker	do	Fort Monroe, Va .....	.....	.....	32.20
Hamilton	do	Fort Slocum, N. Y	663.37	4,053.95	4,717.32
General McDowell ..	Depot quartermaster ..	San Francisco, Cal	2,471.75	20,996.25	23,468.00
Total .....	.....	.....	18,152.60	72,572.54	90,757.34

The *General Rufus Ingalls* was transferred to Corps of Engineers, July 29, 1897. (88255 Q. M. G. O.)
The *General D. H. Rucker* transferred to Board on Regulating Seacoast-Artillery Fire, New York, Oct. 1, 1897.

\$2,300 was paid for a substitute boat while *Resolute* was under repairs, in addition to above cost.

\$294 was paid for a substitute boat while the *Monroe* was under repairs, in addition to above cost.

\$910 was paid for temporary hire of substitute for *General McDowell*, not included in the foregoing.

WATER TRANSPORTATION.

In anticipation of the possible needs of the Quartermaster's Department for ocean transportation for the movement of troops and supplies to Cuba, action was early taken by this office to be prepared for such an emergency, and correspondence was entered into with the various American steamship companies conducting the ocean traffic on the Atlantic and Gulf coasts to ascertain what vessels were available for charter for that purpose.

The responses received from the steamship companies were prompt, and indicated a desire upon their part to afford every means at their

command to aid the Government to provide suitable transportation of the Army and its supplies by sea.

An experienced officer of the Department was sent to New York to consult with the companies whose headquarters were in that city and to inspect and report upon the suitability of the vessels offered for charter. Similar measures were taken at all other points on the Atlantic and Gulf coasts where vessels were offered for charter, and in many instances, where practicable, the inspection was aided by an officer of the Navy detailed by the Navy Department for the purpose.

These reports enabled this office to select those vessels most desirable and best adapted for the transport service of the Army.

The following is a list of the companies with whom charters were entered into prior to July 1, 1898, for services of vessels, showing names of vessels, their tonnage, rate of charter per day, and their carrying capacity:

Owner.	Name of vessels.	Tonnage.	Rate of charter per day.	Carrying capacity.			Remarks.
				Of-ficers.	Men.	Animals.	
New York and Texas S.S. Co.	Comal	2,934	\$625.00	40	400	400	\$575 after thirty days. Do.
Do	Alamo	2,943	625.00	35	700	10	
Do	Rio Grande	2,566	500.00	50	500	10	
Do	Leona	3,329	500.00	45	700	10	
Do	San Marcos	2,837	500.00	45	800	350	
Do	Concho	3,704	550.00	35	700	10	
Do	Lampasas	2,237	650.00	35	200	400	
Do	Nueces	3,367	650.00	25	800	300	
New York and Cuba Mail S.S. Co.	Vigilancia	4,115	600.00	45	800	.....
Do	Seguranca	4,115	600.00	35	600	500	
Do	Orizaba	3,497	500.00	30	640	125	
Do	Yucatan	3,525	500.00	45	1,000	250	
Do	Seneca	2,729	450.00	27	600	250	
Do	Saratoga	2,820	450.00	40	800	250	
Do	Santiago	2,359	450.00	40	600	250	
Do	City of Washington.	2,648	450.00	30	740	250	
Do	Manteo	583	200.00	10	250	100	
Southern Pacific Company	Gusale	998	350.00	20	100	300	
Do	Whitney	1,337	250.00	20	250	250	
Do	Morgan	994	400.00	20	250	230	
Do	Aranas	1,156	400.00	10	200	200	
Do	Clinton	1,187	400.00	20	200	200	
Merchants and Miners' Transportation Co.	Allegheny	2,014	600.00	25	300	200	\$550 after thirty days. Do. Do.
Do	Berkshire	2,014	600.00	25	250	200	
Do	D. H. Miller	2,296	600.00	25	450	300	
Plant Investment Co.	Florida	1,786	600.00	25	500	175	
Do	Olivette	1,611	500.00	25	600	40	\$450 after thirty days.
Tweedie Trading Co.	Catania	3,700	600.00	40	800	.....
Wm. P. Clyde & Co.	Cherokee	2,557	500.00	40	950	.....
Do	Iroquois	2,944	600.00	40	700	.....
Do	Comanche	3,202	640.00	50	500	50	
Miami Steamship Co.	Matteawan	3,300	600.00	35	720	368	
Do	Miami	3,050	550.00	27	900	.....
Cromwell Steamship Co.	Knickerbocker	1,642	400.00	45	900	.....
Do	Louisiana	2,849	500.00	30	325	300	
Do	Hudson	1,800	400.00	35	600	.....
New Orleans Belize Royal Mail Steamship Co.	Breakwater	1,065	340.00	25	500	.....
Do	Stillwater	1,019	325.00	8	60	168	
Hanaw, Henry (Angier Line)	Unionist	2,158	375.00	10	.....	.....	\$325 after thirty days. \$375 after thirty days.
Do	Specialist	2,802	425.00	10	.....	.....
Ocean Steamship Co.	Gate City	1,997	500.00	25	600	.....
Do	City of Macon	2,098	500.00	25	600	.....
New York and Porto Rico Steamship Co.	Arkadia	2,317	250.00	15	250	300	
Total .....	.....	104,201	.....	1,287	22,335	8,746	

Water boats, lighters, tugs, and barges.

Owner.	Name of vessel.	Tonnage.	Rate of charter per day.	Water.	Remarks.
				<i>Gallons.</i>	
John A. Donald	Steamer Kanawha	Water boat.	\$175. 00	180, 000	
Standard Oil Co.	Steamer Maverick	do	500. 00	440, 000	
Do	Barge S. O. N. Y. No. 77	do	100. 00	100, 000	
W. S. Vanaman	Schooner Anne E. Stevens.	do	50. 00	100, 000	
Galveston Steamship Co.	Steamer Bessie	Lighter	50. 00		
Do	Steamer Laura	do	50. 00		
Cumberland Steamship Co.	Steamer Cumberland	do	50. 00		
W. C. Spotswood	Tug Capt. Sam		75. 00		
H. T. Hartwell	Tug Nimrod		80. 00		
W. C. Taylor	Barge Ora		10. 00		
	Barge Ben				Purchased by Government Do.
	Barge Touart				
Total				820, 000	

In addition to the above-mentioned vessels, there were chartered from the Western Union Telegraph Company, for the Signal Service of the Army, the steamship *Adria*, at \$200 per day, used as a cable boat; from Capt. James McKay the steamship *Fanita*, at \$150 per day, for the secret service of the Army, and from John E. Reyburn the steamer *Gretchen*, at \$200 per month, for inspection purposes.

The operations in the harbor of Manila by the Navy rendered it necessary that provision be made for the transportation of troops and supplies to the Philippine Islands.

Some difficulty was met with in securing available transport ships on the Pacific coast, not because of the unwillingness of the steamship companies to charter their vessels, but from the fact that, their ships being engaged in traffic across the Pacific Ocean and as far south as Panama and the transaction of their business being undisturbed by the war, their vessels were not idle and could be secured only upon their arrival at their home ports on the Pacific coast.

In order to secure sufficient means of transportation, it became necessary to ask Congress to grant American registry to some of the ships available for charter, but were under foreign registry.

The following is a statement of the steamship companies from whom vessels were chartered on the Pacific coast, names of the vessels, their tonnage, rate of charter, and carrying capacity:

Owner.	Name of vessels.	Tonnage.	Rate of charter.	Carrying capacity.	
				Officers.	Men.
Pacific Mail Steamship Co.	City of Sydney	3, 000	p. d. \$1, 000	50	1, 000
Do	China	5, 000	p. d. 1, 500	75	1, 500
Do	Colon	2, 700	p. d. 750	58	950
Do	City of Para	3, 532	p. d. 1, 000	50	1, 000
Do	Newport	3, 000	p. d. 1, 000	30	800
Do	Peru	3, 500	p. d. 1, 000	50	1, 000
Oceanic Steamship Co.	Australia	2, 755	p. m. 20, 000	50	1, 000
Do	Zealandia	2, 489	p. m. 20, 000	20	750
Empire Transportation Co.	Ohio	3, 488	p. m. 25, 000	26	916
Do	Indiana	3, 158	p. m. 25, 000	58	950
Johnson Locke Mercantile Co.	Morgan City	2, 300	p. d. 600	32	700
Pacific Coast Steamship Co.	Senator	2, 409	p. d. 1, 000	43	957
Do	City of Puebla	2, 623	p. d. 900	58	930
Pacific Steam Whaling Co.	Valencia	1, 198	p. d. 650	29	608
Total		41, 152		629	13, 059

This statement shows the employment on the Atlantic and Gulf waters at the close of the fiscal year of 43 transport vessels, having an aggregate tonnage of 104,201 tons, with a carrying capacity of 23,622 men, with their arms, ammunition, equipments, subsistence, and medical supplies, and 6,746 animals; 4 water boats, with a carrying capacity of 820,000 gallons, 3 steam lighters, 2 ocean tugs, and 3 deck barges.

On the Pacific coast, 14 transport ships, having an aggregate tonnage of 41,152 tons, with a carrying capacity of 13,688 men, with their complete outfit of camp and garrison equipage, arms, ammunition, medical supplies, and subsistence for a voyage of over 7,000 miles.

The combined fleets consisted of 69 vessels of all classes, with a total tonnage of 145,353 tons, and affording the means for movement of an army of over 37,000 men by sea.

To convert the vessels composing these fleets from their ordinary uses as freight vessels into safe and commodious transport ships extensive alterations were necessary. There had to be constructed sleeping accommodations for the men, stalls for the animals, a largely increased water capacity by construction of extra tanks and the supply of a large number of barrels and casks, and provisions made for pure-air ventilation. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship.

Much care and attention were given to the fitting out of the transports on the Pacific coast, to provide the troops with comfort, cleanliness, protection to health, and the proper means for cooking during the long voyage to Manila. For these purposes increased galley facilities, lavatories, and water-closets were constructed in all these vessels.

The reports received in this office from officers under whose supervision the ships have been fitted up show the following amounts expended for this purpose to the close of the fiscal year, viz:

For fitting up ships of the Atlantic and Gulf fleets	\$98,364.67
For the Pacific fleet (which includes the sum of \$7,694.30 for fitting up of the steamship <i>City of Peking</i> , which was chartered by the Navy Department and turned over to this department for transportation of the Army)	88,268.01
Total	186,632.68

Under the terms of the charter parties for services of transport vessels the Government has furnished all coal for running the vessels and the water required for boilers and drinking purpose.

The supply of coal for this purpose has been purchased, so far as possible, by contract at the lowest obtainable rates for delivery to the various ports where needed to supply the ships, and full report of the contract prices and quantities purchased will be found in the report of the branch of the office which is charged with the contract and purchase of coal.

The total cost for the supply of water is about \$21,000.

The payments for services of the vessels under charter to the close of the fiscal year have been as follows:

On the Atlantic and Gulf waters	\$1,007,952.50
On the Pacific coast	319,764.17
Total	1,327,716.67

HOSPITAL SHIPS.

To provide for the care and transportation of sick and wounded, the Quartermaster's Department purchased from the Maine Steamship Company, of Portland, Me., the steamship *John Englis*, for the sum of \$450,000. This ship has been fitted up as a hospital ship, with every appliance for the care, comfort, and treatment of sick and wounded.

For this purpose the interior of the ship was remodeled, and provided with electric plant for lighting and purifying, sterilizing and laundry plants, and also two steam launches. The expenditures for refitting of the ship, as shown by the accounts received in this office, amount to \$136,851.11.

The ship was renamed *Relief*, and is under the control of the medical department of the Army, an officer of that department being detailed to command the vessel.

Since the close of the fiscal year the steamship *Missouri*, used by the medical department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's department at an expenditure of \$85,854.

CHAS. BIRD,
Colonel and Quartermaster, United States Volunteers.

OPERATIONS SINCE THE CLOSE OF THE FISCAL YEAR 1897-98.

ORGANIZATION OF THE DIVISION OF TRANSPORTATION.

General Orders, No. 122, dated Adjutant-General's Office, August 18, 1898, publishes the following orders of the Secretary of War:

WAR DEPARTMENT, *Washington, July 18, 1898.*

A division of transportation is hereby created in the Quartermaster's Department, which shall be charged with the supervision and control of all rail and water transportation.

Col. Frank F. Hecker, U. S. Volunteers, is hereby detailed as chief of this division, and Col. Charles Bird, U. S. Volunteers, as deputy chief.

Their report upon the work of this division will be made direct to the Quartermaster-General.

R. A. ALGER, *Secretary of War.*

Owing to the increased volume of business due to active operations of the Army, it was found necessary to divide the work of the division of transportation into two branches, one to conduct the business pertaining to railroad transportation, and the other to have exclusive charge of the ocean transport service.

Since the beginning of the present fiscal year there have been chartered on the Atlantic coast the following-named vessels, viz: From the New Orleans, Belize Royal Mail Steamship Company, the S. S. *Wanderer*, of 531 tons burden, at \$220 per day; from the Plant Investment Company, the S. S. *La Grande Duchesse*, of 5,018 tons burden, at \$1,200 per day, and S. S. *Tarpon*, of 450 tons burden, at \$250 per day; and from H. P. Kirkham, the steamer *Uto*, of 899 tons burden, at \$165 per day.

These vessels were made auxiliary to the fleet of transports for transportation of troops and supplies to Cuba and Porto Rico, and increased the total tonnage of the troopships of the Atlantic fleet to 111,099 tons, and increasing the carrying capacity to over 25,000 men.

To meet the need for light-draft vessels for towing and lighterage at Santiago, Cuba, two fine ocean tugs were chartered early in July, the *Underwriter*, at \$160 per day, and the *Gladisfen*, at \$90 per day, and sent to that place.

There have also been chartered, for service in the movement of troops and supplies at Montauk Point since the return of General Shafter's army from Cuba, one large steamship, at \$1,000 per day, for the transportation of sick and wounded, and five small steamers, three barges, and two flatboats, at a total cost of \$510 per day. As that place is abandoned as a camp, the services of these vessels are being dispensed with as rapidly as possible.

On the Pacific coast four additional vessels were chartered for the transportation of troops and supplies to Manila, viz: From the Pacific Mail Steamship Company, *City of Rio de Janeiro*, of 3,548 tons burden, at \$1,000 per day; from the Empire Transportation Company, steamship *Pennsylvania*, 3,166 tons burden, at \$25,000 per month; from the Alaska Commercial Company, steamship *St. Paul*, 2,440 tons burden, at \$1,000 per day, and from the Alaska Packers' Association, the sailing ship *Tacoma*, of 1,738 tons burden, at \$200 per day.

There were also purchased, for the service of the Army on the Pacific Ocean, two large and commodious steamships, the *Scandia* and the *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean. The prices paid for these vessels were, for the *Scandia* \$200,000 and for the *Arizona* \$600,000. These vessels have a tonnage, the former of 4,243 tons, the latter of 5,000 tons, and, with the four vessels chartered after the close of the fiscal year, increase the total tonnage of the fleet operating on the Pacific Ocean to 61,287, and the carrying capacity to over 20,000 men.

Three of the transport ships which formed the first expedition of the army to Manila have returned to San Francisco, and their charters have been canceled, viz: The steamship *Australia*, on August 29, 1898; the steamship *City of Sidney*, on August 30, 1898, and the steamship *Colon*, on September 7, 1898.

The charter of the steamship *City of Peking* has also been canceled by the Navy Department.

PURCHASE OF SHIPS ON THE ATLANTIC.

Upon loading the vessels at Port Tampa with General Shafter's army for the invasion of Cuba, it was found that the fleet which had been fitted up for the transportation of an army of 25,000 men or more, with their animals, equipment, and supplies, would not with safety carry more than about 16,000 men, and it therefore became necessary to increase the number of transport vessels, with larger carrying capacity for men and animals, and with bilge keels to prevent rolling, to make the ships more comfortable for stock.

Congress being averse to admitting foreign ships to American registry, the Secretary of War decided to authorize the purchase of vessels and have them fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies.

Fourteen large steamships have been purchased and fitted up into three classes, viz: First, freighters, for carrying coal, freight, etc.; second, combination ships, for carrying men and animals, with artillery,

wagons, stores, forage, harness, etc., and third, troopships, for carrying troops with regimental horses and their equipment and subsistence.

The following is a list of the vessels purchased, showing their tonnage, cost, class, and carrying capacity:

Name of vessel.	Tonnage.	Cost.	Class.	Carrying capacity.		
				Officers.	Men.	Animals.
Panama, No. 1	2,085	\$41,000	Freighter	10	400	.....
Port Victor, No. 2	2,792	175,000	do	25	400	.....
Rita, No. 3	2,194	125,000	do	15	700	.....
Mohawk, No. 20	5,658	660,000	Combination	80	1,000	1,000
Mobile, No. 21	5,780	660,000	do	80	1,000	1,000
Massachusetts, No. 22	5,673	660,000	do	80	1,000	1,000
Manitoba, No. 23	5,673	660,000	do	80	1,000	1,000
Minnewaska, No. 24	5,796	660,000	do	100	1,200	1,000
Mississippi, No. 25	3,732	350,000	do	40	800	800
Michigan, No. 26	3,722	350,000	do	40	800	800
Romanian, No. 27	4,126	240,000	do	45	1,100	50
Obdam, No. 30	3,656	250,000	Troopship	50	1,300	100
Berlin, No. 31	5,641	400,000	do	75	2,000	.....
Chester, No. 32	4,770	200,000	do .....	.....	.....	.....
Total	61,298	5,431,000	.....	720	12,700	6,750

Eight of these vessels are provided with refrigerators for the transportation of fresh meat, seven of them having a capacity of 1,000 tons each.

Two of them, the *Panama* and the *Rita*, were captured by the Navy and were purchased by the Quartermaster's Department after having been condemned as prizes by the proper courts and offered for sale.

All of these were merchant vessels and were temporarily fitted up by this Department as army transports to meet the urgent demands of the service for additional transports, for which purpose an expenditure was made of \$178,018.37.

All of these vessels are to be thoroughly overhauled and refitted for the army transport service, and two of them, the steamships *Mobile* and *Mohawk*, are now in course of being thus refitted. Specifications for refitting the others are being prepared, and the work upon them will be commenced as soon as they can be spared from the service upon which they are now engaged.

When these vessels are fitted up in the manner designed, it is believed that the Department will possess a fleet of the finest transport vessels afloat, and be thoroughly equipped to meet every demand upon it for ocean transportation.

TRANSPORTATION OF ARMY TO CUBA.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last, for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for the transportation of 20,000 to 25,000 men for a voyage to the vicinity of Havana, also 2 decked barges provided by the Engineer Department.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than about 16,000 men, with their animals, equipments, ammunition, and subsistence and medical supplies, on a voyage of 1,000 miles. For some reason one of the steam lighters, the tug, and a decked barge did not reach Cuba with the fleet.

The entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army, difficulty was encountered by reason of the lack of sufficient means for lightering the vessels, which could not enter the harbor of Daiquiri, and this office was advised of the needs of the command.

Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow, the *Ora*, *Ben*, and *Touart*, the former chartered, the last two purchased by the Department, were dispatched with orders to proceed direct to Santiago; and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, were dispatched to Santiago from New Orleans. These tugs lost all their barges, and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition with a large force of mechanics of various trades, and laborers, with machinery such as pile drivers, implements for construction of docks and railways, with the necessary materials, iron, and lumber, for building docks, lighters, repairing railroads and engines.

The company were furnished the steamship *Panama* and two fine ocean tugs, the *Gladisfen*, chartered at \$90 per day, and the *Gypsum King*, which was purchased for the service. This outfit proceeded to Santiago, thence to Ponce, Porto Rico, where their services have been of great value in the operation of the Army in that harbor.

The following is a list of vessels purchased by this Department to provide lighterage for the transport ships, showing their class and cost, respectively:

Name.	Class.	Cost.
Gypsum King	Tug	\$150,000
Britannia	do	40,000
Sarah	do	6,800
E. L. Bartley	Barge	5,000
Willie	do	5,000
Annie	do	10,000
Mocha	do	10,000
Helen	do	10,000
L. E. Rinehardt	Lighter	5,500
Total cost.....		241,800

These vessels, with the exception of the tug *Britannia*, which has been in service in New York Harbor and at Montauk Point, have been sent to Ponce, Porto Rico, and are usefully employed.

The total expenditure for the purchase of vessels of all classes has been as follows:

For 14 vessels on the Atlantic coast	\$5,431,000
For 2 vessels on the Pacific coast	800,000
For tugs, lighters, and barges	245,300
Total expenditures.....	6,476,300

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army and to replace them by the five immune regiments, the Fifth United States Infantry, and the Twenty-third Kansas Volunteers.

The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, 117 miles from New York, was selected as a reception camp for the returning army, and preparations were made for the safe and speedy landing of the troops as they arrived and for the supplies required for them. For this purpose there were employed under charter several small vessels, of which the following is a list, showing their tonnage and rate of charter per day:

Name of vessel.	Tonnage.	Rate per day.
Propeller Alfred W. Booth.....	118	\$75
Propeller James A. Lawrence.....	85	75
Propeller Lewis Pulver.....	71	50
Steamer Vigilant.....	150	100
Steam lighter Columbia.....	175	60.
Barge Carey.....		40
Barge Vanderbilt.....		40
Barge Arthur.....		40
Two flatboats, each.....		15

The steamship *Shinnecock*, 1,205 tons burden, was also chartered at \$1,000 per day to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment.

The camp at Montauk Point having been broken up, the services of these vessels have been ordered to be dispensed with.

INVASION OF PORTO RICO.

The reinforcements sent to General Shafter's army in Cuba, consisting of General Garretson's brigade, which sailed from Charleston, S. O., a force of artillery from Tampa, Fla., and one regiment—the Eighth Ohio Volunteers—from New York City, arrived at Santiago just previous to the surrender of the Spanish army in that province, and their services were not needed. The Eighth Ohio Volunteers, being on the U. S. S. *Yale*, were disembarked, and the remainder of the command sailed to Ponce, Porto Rico, where it was disembarked. Other troops were dispatched to Ponce, viz:

General Ernst's brigade from Charleston, General Haines's brigade, General Schwan's brigade, General Grant's command, and eight batteries of artillery from Newport News, and Colonel Griffin's engineer regiment from New York—a total movement of about 16,000 men and 3,367 animals, with their artillery, equipment, and supplies, and a large quantity of ammunition and many army wagons.

Of these troops there have been returned to New York 5,581 men and 256 convalescents to Fort Monroe.

CANCELLATION OF CHARTERS.

As the chartered transport ships have arrived from Cuba and Porto Rico with their loads of returning troops, orders have been given from this office that as soon as the troops were disembarked the vessels proceed to their home ports for discharge from the service, unless there

has been necessity for their return for more troops or other urgent need existing for their further service. Under these orders there have been discharged and returned to their owners the following-named vessels, viz:

Name of vessel.	Date canceled.	Name of vessel.	Date canceled.
	1898.		1898.
S. S. Louisiana.....	Aug. 12	S. S. Florida.....	Sept. 9
S. S. Lampasas.....	Aug. 13	S. S. Breakwater.....	Sept. 10
S. S. Gate City.....	Aug. 18	S. S. Wanderer.....	Sept. 10
S. S. Iroquois.....	Aug. 18	S. S. Ulinton.....	Sept. 11
S. S. Cherokee.....	Aug. 22	S. S. Gussie.....	Sept. 11
S. S. Matteawan.....	Aug. 24	S. S. Allegheny.....	Sept. 12
S. S. Miami.....	Aug. 24	S. S. Berkshire.....	Sept. 12
S. S. City of Macon.....	Aug. 26	S. S. Catania.....	Sept. 13
S. S. Rio Grande.....	Aug. 26	S. S. City of Washington.....	Sept. 15
S. S. Leona.....	Aug. 29	S. S. Nueces.....	Sept. 16
S. S. Morgan.....	Aug. 31	S. S. Alamo.....	Sept. 23
S. S. Arkadia.....	Sept. 2	S. S. Concho.....	Sept. 23
S. S. Comanche.....	Sept. 2	S. S. Specialist.....	Sept. 23
S. S. La Grande Duchesse.....	Sept. 2	S. S. Unionist.....	Sept. 23
S. S. Uto.....	Sept. 2	S. S. Tarpon.....	Oct. 2
S. S. Whitney.....	Sept. 2	S. S. Knickerbocker (not reported).....	
S. S. Aransas.....	Sept. 3	S. S. Mantec (not reported).....	
S. S. D. H. Miller.....	Sept. 3	S. S. Orizaba (not reported).....	
S. S. Santiago.....	Sept. 3	S. S. Saratoga (not reported).....	
S. S. Hudson.....	Sept. 6	S. S. Seneca (not reported).....	
S. S. San Marcos.....	Sept. 8	S. S. Yucatan (not reported).....	

The following-named vessels, whose services were no longer required, have also been discharged from the service of the Army and their charters canceled, viz:

Steamship Adria.	Water boat Maverick.
Steamship Fanita.	Water barge, S. O., of New York, No. 77.
Steam lighter Laura.	Tug Captain Sam.
Steam lighter Bessie.	Tug Nimrod.
Water boat Kanawha.	Tug Underwriter.

Other vessels are under orders for discharge, and the number employed is being reduced as rapidly as the needs of the service will permit.

EXPEDITIONS TO PHILIPPINE ISLANDS.

Seventeen of the large steamships on the Pacific and one large sailing vessel were chartered by the Department for the transportation of troops and supplies to the Philippine Islands, and two steamships have been purchased for this service.

The first expedition sailed from San Francisco on May 25, under command of General Anderson, with 2,491 officers and men, upon three steamships, *City of Sydney*, *Australia*, and *City of Peking*.

The second expedition, under command of General Greene, with 3,586 officers and men, sailed June 15 on the steamships *China*, *Colon*, and *Zealandia*.

The third expedition, under command of General Merritt, with the command of General MacArthur, consisting of 4,847 officers and men, sailed on June 25, 27, 28, and 29 on the steamships *Senator*, *Morgan City*, *City of Para*, *Indiana*, *Ohio*, *Valencia*, and *Newport*.

The fourth expedition, under command of General Otis, with 1,682 officers and men, sailed July 15 on the steamships *Peru* and *City of Puebla*, followed on July 19 by the steamship *Pennsylvania*, with 1,348 officers and men.

The last expeditions, under command of Gen. H. G. Otis, sailed on July 23 and 29 on the steamships *City of Rio de Janeiro* and *St. Paul*, with 1,735 officers and men.

These vessels have all arrived at Manila without mishap, and reports received show that the health and comfort of the men were maintained during the long voyage of over 7,000 miles.

The sailing ship *Tacoma*, with 30 enlisted men, 19 civilian teamsters, 210 horses and mules, 44 wagons and ambulances, and six months' supply of subsistence and forage, sailed from San Francisco on August 6. On August 21 the steamship *Arizona*, with 490 officers and men and 4 Red Cross nurses on board, sailed from San Francisco, and on August 27 the steamship *Scandia* sailed with troops for Honolulu and 173 officers and men for Manila.

The entire movements show that transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

TROOPS SENT TO HONOLULU.

Upon the acquisition of the Hawaiian Islands the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel—11 officers and 313 men—who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

MOVEMENTS BY WATER.

The total movements by transport ships have been as follows:

To Cuba:	Men.
From Tampa, Fla., General Shafter's army, about	16,000
From Newport News, Va., General Duffield's command	3,500
From Tampa, Fla., First District of Columbia Volunteers	850
From New York City, Eighth Ohio Volunteers	1,200
From New Orleans, La., 2 regiments U. S. Volunteers (immunes)	2,000
From Savannah, Ga., 2 regiments U. S. Volunteers (immunes)	2,067
From New York City—	
Eighth Illinois Volunteers (colored)	1,000
Twenty-third Kansas Volunteers (colored)	878
From Tampa, Fla., Fifth United States Infantry	700
Total	<u>28,195</u>
To Porto Rico:	
From Charleston, S. C.—	
General Garretson's brigade, by way of Santiago, with General Miles.	2,400
General Ernst's command	3,200
From Tampa, Fla.—	
General Schwan's brigade, with Lieutenant-Colonel Black's engineer companies	2,500
Artillery and recruits	700
From Newport News, Va.—	
General Haines's brigade	4,427
General Grant's command	1,273
6 batteries artillery	1,041
6 troops cavalry	719
From New York City, engineer regiment and civilian employees	1,200
Total	<u>17,460</u>
Returned from Cuba:	
Convalescents to various cities on the Atlantic coast	2,258
Troops to Montauk Point, New York	19,428
Total	<u>21,686</u>

	Men.
Returned from Porto Rico to New York	5,541
Clerks, messengers, mechanics, teamsters, packers, and laborers transported to Cuba and Porto Rico, about	2,150
Returned from those islands	770
Total	2,920

RECAPITULATION.

Persons transported—	
To Cuba	28,195
To Porto Rico	17,460
To Manila	16,405
To Honolulu	629
From Cuba	21,686
From Porto Rico	5,541
Civilian employees transported	2,920
Total persons transported by sea	92,836

TRANSPORTATION OF SPANISH PRISONERS OF WAR TO SPAIN.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American Army, it was agreed that transportation should be furnished by the United States Government for the Spanish prisoners of war to Spain, and to provide subsistence to them while en route.

The Quartermaster's Department was directed to provide for carrying out the terms of this agreement. In response to public advertisements, proposals for the transportation from Santiago de Cuba to Cadiz, or to such other port of Spain as might be designated, for 1,000 commissioned officers and 24,000 enlisted men, and for their subsistence en route, were received and opened on July 20, 1898. Ten proposals were received, which were carefully digested and considered, and the one submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted and contract entered into with that company for the transportation of all the prisoners of war, the commissioned officers to be provided with first-class cabin accommodations on the ships, and the enlisted men with third-class or steerage passage, with suitable galley accommodations conforming to the United States requirements as to space and ventilation for enlisted men, and to provide subsistence while en route equal to the garrison ration of the United States Army. The rates paid under the terms of the contract are for each commissioned officer \$55 per capita, and for each enlisted man \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having sufficient facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company, Limited, Hamburg American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co., Limited, North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons & Co., Limited, and Wilson & Furness Leyland Line, Limited, which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival, or demurrage to be paid at rate of 60 cents per capita per day, passenger capacity. If passengers are on board during such delay, 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but

desire, if necessary, an extension of time to include the entire month of August.

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number transported to \$1,312,915, whereas the contract entered into had no demurrage conditions and the actual sum paid was \$513,860.

Mr. Solon F. Massey, agent Quartermaster's Department, was designated to superintend the embarkation and to report the number of officers and men which were put on board the vessels. The Government decided to include in the transportation the wives and children of the officers, and the priests and sisters of charity who had been in service in the hospitals and with the Spanish army.

The report of Mr. Massey, which has just been received in this office, shows that the embarkation began on August 9, 1898, and was completed on September 17, 1898, and that 22,864 persons were embarked.

The following is a statement showing the dates of embarkation, names of vessels, and number of officers, enlisted men, and others who took passage:

Date of embarkation.	Name of vessel.	Officers.	Enlisted men.	Women and children over 5 years of age.	Priests and Sisters of Charity.	Total.
August 9	Alicante	38	1,069	6	11	1,124
August 14	Isla de Luzon	137	2,056	40	4	2,237
August 16	Covadonga	109	2,148	79	.....	2,336
August 19	Villaverde	52	565	34	.....	651
Do.	Isla de Panay	99	1,599	26	5	1,729
August 22	P. de Satrustegui	128	2,359	68	.....	2,555
August 25	Montevideo	136	2,108	122	2	2,368
August 27	Cheribon	18	905	37	.....	960
August 28	Colon	100	1,316	59	.....	1,475
August 30	do	23	726	5	.....	754
September 1	Leon XIII	113	2,209	108	.....	2,430
September 3	San Ignacio	59	1,408	20	12	1,499
September 6	Leonora	15	1,118	.....	.....	1,133
September 12	Ciudad de Cadiz	53	.....	19	14	86
September 17	San Augustin	65	800	45	.....	910
Do.	San Francisco	18	588	11	.....	617
Total .....	.....	1,163	20,974	679	48	22,864

The report of Mr. Massey states that, with the exception of the delay of eleven days in getting the Spanish prisoners from Baracoa and Sagua de Tanamo to Guantanamo, where the transport ships awaited them, the embarkation was expeditiously and satisfactorily accomplished; that he inspected the ships and found all of them well arranged for the services they were engaged to perform, and well equipped for the comfort of the men and with ample quantities of food for the subsistence of the passengers for fifteen days, and varied in quality. That three of the vessels were fitted out as hospital ships, viz: *Alicante*, *Cheribon*, and *San Ignacio*, which were well equipped for that service, with surgeons and assistants, and modern appliances for the care and comfort of the sick.

The Department is assured from the report of Mr. Massey that the difficult problem of transportation of the Spanish prisoners of war has been economically and satisfactorily solved.

ESTABLISHMENT OF A LINE OF STEAMSHIPS TO CUBA AND PORTO RICO.

The permanent occupation of the islands of Cuba and Porto Rico by the army has rendered necessary the transportation of large quantities

of Army supplies to those islands, and also the mails for the troops. It was therefore determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York, for the transportation of supplies and mails for the Army, and also such officers, enlisted men, employees, and other persons who are entitled by competent orders to be furnished transportation by the Quartermaster's Department between those points. This line was opened Wednesday, August 31, 1898, on which date the steamship *Seneca* left New York with the Porto Rican Commission on board, sailing direct to San Juan, Porto Rico, where the commission disembarked and the vessel proceeded thence to Ponce, Porto Rico, and thence to Santiago de Cuba, at which places, after delivery of supplies and mails, she returned direct to New York with passengers and mails.

Since the sailing of the *Seneca* from New York a steamship has sailed from that port every Wednesday for Ponce, Santiago and return, and it is anticipated that the fine transport ships now owned by the Department will be found amply sufficient to maintain this regular service and perform such other ocean transport service as is required for the maintenance of the armies serving in Porto Rico and Cuba.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

Since the occupation of Santiago by the army, at the request of Miss Clara Barton, of the Red Cross Society, a large quantity of supplies belonging to that society and not needed in Santiago have been loaded on the chartered steamship *Clinton* and transported to Havana. The steamship *Comal* has been turned over to the Subsistence Department of the Army and is engaged in the transportation of relief supplies, one cargo having been delivered to Havana, and the vessel being now on her way to Matanzas with another load for that port.

In concluding this report it is proper that acknowledgment be made of the valuable assistance rendered to this division of your office by the officers of the Quartermaster's Department stationed in New York, Philadelphia, Tampa, Key West, New Orleans, Mobile, Charleston, Fort Monroe, and Newport News on the Atlantic and Gulf coasts, and at San Francisco and Seattle on the Pacific coast, at all of which places there has been great activity in the successful conduct of the ocean transport fleets, in fitting up the ships and providing the necessary supplies for running them. The acknowledgment and thanks of the Department are also due to the officers of the Navy who have rendered valuable counsel and assistance in the inspection and preparation of the ships for the service of the Army.

Respectfully submitted.

FRANK J. HECKER,
Colonel and Quartermaster, U. S. Volunteers,
Chief of Transportation Division.

CHAS. BIRD,
Colonel and Quartermaster, U. S. Volunteers,
Deputy Chief of Transportation Division.

The QUARTERMASTER-GENERAL OF THE ARMY.

The following special report on railroad transportation, covering movements of troops since the inauguration of the war with Spain to the transfer of troops from Camp Wikoff at Montauk Point in September and first week of October, is respectfully submitted:

MOVEMENT OF THE REGULAR ARMY.

The orders for the movement of the regular troops to Chickamunga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898, and were addressed to the several department commanders. They designated the point of destination and the time at which the movement was desired to take place.

The chief quartermasters of the respective departments were immediately charged by the Quartermaster-General with all the necessary transportation arrangements. The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. In no case was any delay ever reported to this office, nor is any known to have occurred. These troops were moved with the most satisfactory dispatch, and an entire absence of accident.

MOVEMENT OF THE VOLUNTEER FORCES.

Upon the receipt by the Quartermaster-General from the War Department of a list showing the assignment of the volunteer forces to the several national encampments of mobilization, the proper officers of the Quartermaster's Department throughout the country were disected, in anticipation of the required movement, to examine the list supplied by the War Department and familiarize themselves with every detail of the subject; to consult the proper railroad officials interested in the transportation of these troops, and determine in advance, as far as practicable, all preliminaries that could be settled before the actual movement of the troops occurred, such as determining routes of travel, rates, etc., for each movement, so that when the troops should actually move no possible delay should occur, and they might be moved with comfort and celerity.

The officers of the Department acted in all these matters with commendable zeal and energy, and in many cases agreed upon flat rates to govern all such shipments which were most advantageous to the Government as a matter of economy.

On May 13 the Adjutant-General sent to the Quartermaster-General his first orders for the movements of volunteers—a separate order for each organization—designating the point of destination. Instructions were immediately wired, in all cases of even date with the order of the Adjutant-General, to the quartermasters most convenient to move the troops. At the same time the commander of the organization was wired as to the officer charged with the movement, and the chief quartermaster at the national encampment was also informed by telegraph that the shipping officer would wire him the date of departure and probable time of arrival of each organization. Under these instructions the volunteer troops have gone to destination with promptness and remarkable freedom from accident or delay en route.

Statement has been prepared in this office showing, as far as possible, the shipments of the various volunteer organizations, with all detailed information as to number of officers and men, dates of movements, cost of the service, passenger and freight, with the rates at which each movement has been made. This report is voluminous, and

the conclusions or summary, from information obtained to date, only can be stated in the present report. Moreover, it must remain for some time yet incomplete, until the accounts for all these services are rendered by the many railroads of the country, critically examined, and paid. It will, when completed, present in tabular form a correct and detailed statement of all railroad transportation connected with the movements of troops of the Regular and Volunteer Army during the war with Spain.

From April 1, 1898, to the breaking up of Camp Wikoff, the aggregate movement of troops by rail amounted to 17,863 officers and 435,569 men.

The following movements have been made since April 1, 1898, and reported in full to this office:

Departments, depots, and camps.	Officers.	Men.	Total.
Chief quartermaster:			
Department of the Lakes.....	2,299	52,201	54,500
Department of the East.....	722	14,182	14,904
Department of the Columbia.....	294	6,289	6,583
Department of the Colorado.....	286	6,844	7,130
Department of the Gulf.....	602	13,615	14,217
Department of Dakota.....	487	10,374	10,861
Department of the Missouri.....	646	12,751	13,397
Department of California.....	348	1,624	1,972
Depot quartermaster:			
New York City.....	3,166	74,266	77,432
St. Louis, Mo.....	589	13,486	14,075
Washington, D. C.....	1,572	49,848	51,420
Philadelphia, Pa.....	124	3,603	3,727
Chief quartermaster:			
Anniston, Ala.....	50	1,279	1,329
Huntsville, Ala.....	242	5,888	6,130
Mobile, Ala.....	406	8,824	9,230
Jacksonville, Fla.....	428	11,095	11,523
Tampa, Fla.....	1,303	39,121	40,424
Miami, Fla.....	274	7,327	7,601
Chickamauga, Ga.....	2,785	68,095	70,880
Knoxville, Tenn.....	171	5,434	5,605
Lexington, Ky.....	266	7,307	7,573
San Antonio, Tex.....	46	1,255	1,301
New Orleans, La.....	352	10,281	10,633
Camp Meade, Pa.....	405	10,560	10,965
Total.....	17,863	435,569	453,432

Extremely low rates have been secured by the Quartermaster's Department in making these movements, generally not exceeding 1½ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit has been provided under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of ten tourist sleepers, two kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

Respectfully submitted.

FRANK J. HECKER,
Colonel and Quartermaster, U. S. Volunteers,
Chief of Transportation Division.

CHAS. BIRD,
Colonel and Quartermaster, U. S. Volunteers,
Deputy Chief of Transportation Division.

QUARTERMASTER-GENERAL'S OFFICE, October 14, 1898.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 1, 1898.

GENERAL: I have the honor to submit the annual report of the clothing supply branch of this office for the fiscal year ending June 30, 1898.

The principal work of this branch, to which I was assigned for duty on the 15th of May last, consists of the purchase, manufacture, and issue of all the clothing and equipage supplies required by the Army.

MANUFACTURES AND PURCHASES.

The strength of the Army prior to the war with Spain consisted of about 25,500 men, and under the annual appropriations made by Congress it was only with the strictest economy that it was possible to procure the necessary clothing and equipage supplies to which the Army was entitled under existing orders and regulations.

The accompanying Statement A shows in detail the quantities of the principal articles of clothing and equipage and clothing materials on hand at the general depots of the Quartermaster's Department on the 30th of April last, consisting, among other articles, of the following:

Wool blankets	61,368	Trousers:	
Blouses	28,192	Foot	pairs.. 21,000
Forage caps	26,670	Mounted	do... 18,074
Canvas fatigue coats	12,976	Cotton undershirts	122,965
Canvas fatigue trousers.. pairs..	11,866	Woolen undershirts	75,134
Canton flannel drawers... do...	61,092	Common tents	1,503
Campaign hats	32,367	Conical wall tents	605
Leggings	51,354	Hospital tents	291
Overcoats	9,374	Shelter tent halves	12,692
Rubber ponchos	4,775	Wall tents	511
Dark-blue flannel shirts	30,764	Blouse flannel	yards.. 169,615
Barrack shoes	39,644	Canton flannel	do... 103,669
Shoes	33,939	Cotton duck for tents	do... 290,196
Cotton stockings	321,064	Sky-blue kersey, 22 ounces.. do...	112,782
Woolen stockings	94,330	Shirting flannel	do... 73,758

This was the condition of affairs on the 30th of April last.

On the 22d of April the Department found itself suddenly confronted with the problem of clothing and equipping an army of 125,000 volunteers, to which Congress, on the 26th of April, added an increase to the regular establishment aggregating 61,184 men, exclusive of about 1,500 men pertaining to miscellaneous detachments. On the 25th of May last 75,000 additional volunteers were called into service, making a grand total of 262,684, instead of 25,000 men, to which should be further added 10 regiments of immunes, 3 regiments of engineers, and 1 of the Signal Corps, and 3 regiments of volunteer cavalry.

Recourse was at once had to every known expedient to obtain supplies, but great difficulties had to be overcome. As an instance, in the matter of uniform trousers, the wool had to be dyed out of which to manufacture the cloth from which to make the garments. It was upon the recommendation of this office that the Secretary of War authorized the purchase of dark-blue trousers, which aided materially in equipping the men. The Department was subjected to criticism on this account, but the men were clothed; otherwise they would not have been.

Contracts had to be entered into for all the different articles of clothing and equipage, for which there would likely be an early demand, and the extent of the latter could not even be properly anticipated.

Great care and vigilance had to be exercised to prevent the supply of articles of inferior quality, and it is believed that the Department has been successful in preventing deliveries of goods that could reasonably be objected to. The aim has been to obtain articles conforming as nearly as practicable to existing standards and specifications.

One of the greatest difficulties encountered and successfully met was the extraordinarily large demands for tents. Besides providing for the regulation allowances to which the troops were entitled, and for ordinary hospital purposes, the sickness to which our Army in active campaign as well as in camp was subjected created demands beyond all expectation. It should be borne in mind that at the commencement of the war there was scarcely any cotton duck to be found in this country suitable for military purposes, the supply having become depleted by the large demand for tentage from persons leaving the States for the Klondike region and the unprecedented purchases by the Navy Department.

The manufacture of tents was prosecuted in every locality West and East, wherever it was found possible to obtain the materials and labor skilled to manufacture them. Even recourse was had to the assistance kindly tendered this Department by the Second Assistant Postmaster-General, who placed the force of the mail-bag repair shop at its disposal. By this timely aid alone 3,771 common tents were manufactured from the materials which were furnished by this Department for that purpose.

Notwithstanding all the difficulties, in the short period of about four months nearly 300,000 men have been fully equipped and the equipment maintained. A portion of the Army has been transported to and supplied in the Philippines; another portion in Porto Rico, and an army of 20,000 cared for in Cuba under the most difficult and trying conditions. The army in Cuba, leaving everything behind, arrived at Montauk Point and found a complete new outfit of tents and clothing ready there for them.

The accompanying Statement B shows in detail the quantities of the principal articles of clothing and equipage and materials purchased or contracted for during the last fiscal year, and the various places at which they were procured—this for the purpose of showing the endeavors of the Department to reach every locality that could contribute toward meeting the requirements of the service, taking into consideration the quality and kind of supplies needed. For a better understanding, this statement has been divided into two periods, viz, from July 1, 1897, to April 30, 1898, covering the period prior to the commencement of the war with Spain, and from May 1 to the close of the fiscal year; also from July 1 to August 15, 1898—this for the purpose of showing the purchases and manufactures of the principal articles on account of said war.

There were manufactured at the Philadelphia, Jeffersonville, St. Louis, and San Francisco depots, during the periods specified in this statement, the following principal articles, viz:

Articles.	Depot.									
	Philadelphia, Pa.			Jeffersonville, Ind.			San Francisco, Cal.			St. Louis.
	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	May 1 to June 30, 1898.
Dress coats, all kinds	1, 739	624	.....	.....	.....	.....	207	.....	.....	.....
Overcoats, kersey, made and unmade	6, 372	18, 243	.....	.....	.....	.....	369	450	1	.....
Blouses, made and unmade ..	7, 319	40, 419	2, 466	8, 680	49, 074	15, 703	1, 256	5, 474	3, 407	.....
Coats, canvas fatigue	3, 876	3, 048	2, 972	3, 346	1, 715	2, 525	921	4, 946	3, 414	.....
Trousers:										
Kersey, foot, made and unmade	22, 999	47, 200	15, 284	.....	.....	.....	3, 239	10, 692	732	10, 651
Kersey, mounted, made and unmade	7, 637	2, 232	7, 720	.....	.....	.....	266	437	226	7, 273
Canvas fatigue	5, 853	3, 047	2, 877	5, 224	972	2, 356	1, 841	5, 255	3, 440	.....
Overalls	700	500	4, 352	.....	.....	.....	746	12	283	.....
Stable frocks	300	.....	.....	792	.....	.....	2, 023	.....	.....	.....
Shirts, dark blue flannel ..	16, 945	41, 289	20, 899	10, 235	9, 440	.....	1, 866	1, 809	40	.....
Drawers, cotton flannel	19, 884	36, 459	24, 978	27, 272	34, 544	5, 184	4, 482	2, 414	113	.....
Tents:										
Conical wall	328	9	15	.....	.....	.....	.....	.....	.....	.....
Hospital	207	131	295	.....	.....	.....	.....	.....	.....	.....
Wall	589	285	383	.....	.....	.....	.....	.....	.....	.....
Shelter	6, 331	179, 499	18, 003	.....	.....	.....	.....	.....	.....	.....
Common	862	935	217	.....	.....	.....	.....	.....	.....	.....

Purchases and contracts for clothing and equipage were made at the following depots and points, viz: Philadelphia, Pa.; Jeffersonville, Ind.; St. Louis, Mo.; San Francisco, Cal.; New York; Chicago, Ill.; Boston, Mass.; Baltimore, Md.; New Orleans, La.; Cincinnati, Ohio; Detroit, Mich.; St. Paul, Minn.; and Washington, D. C., and the following are the principal articles that were purchased or contracted for. Except in instances where the necessities of the service required purchases in open market, competition was in all cases invited.

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
Blankets, wool	22, 000	299, 187	247, 151
Blouses .....	.....	105, 224	100, 008
Caps, forage	77, 000	230, 000	.....
Canvas fatigue coats .....	.....	24, 022	7, 579
Canvas fatigue trousers .....	.....	24, 011	7, 579
Drawers, cotton flannel .....	.....	50, 000	.....
Drawers, summer	43, 340	648, 436	408, 554
Field and summer uniforms .....	.....	39, 150	114, 019
Hats, campaign	18, 040	263, 346	213, 359
Leggings	11, 000	207, 300	381, 500
Overcoats .....	.....	4, 000	125, 000
Ponchos, rubber	32, 925	220, 385	105, 000
Shirts, dark-blue flannel .....	.....	239, 784	308, 850
Shoes:			
Barrack .....	.....	25, 000	51, 093
Calfskin	27, 950	538, 663	243, 640
Stockings:			
Cotton .....	.....	726, 199	1, 270, 500
Woolen	40, 006	129, 764	21, 178
Trousers:			
Foot .....	.....	114, 351	273, 405
Mounted .....	.....	.....	83, 000
Duck .....	.....	4, 150	110, 850
Undershirts:			
Cotton	40, 000	768, 545	546, 111
Woolen .....	.....	31, 477	12, 679

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
Tents:			
Common		18,887	24,190
Conical wall		451	265
Hospital		447	5,473
Shelter halves		135,773	39,104
Wall		5,270	2,712
Duck, tent, all kinds	882,354	1,072,828	423,000
Flannel:			
Blouse	40,000	830,479	3,200
Canton		449,063	559,429
Shirting	23,114	671,620	4,000
Kersey, sky-blue	68,754	561,098	16,110

Statement C, accompanying this report, shows in detail the issues of clothing and equipage made during the three periods from July 1, 1897, to April 30, 1898, from May 1 to June 30, and from July 1 to August 15 last. The following are the principal items, viz:

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
CLOTHING.			
Blankets, wool	27,559	193,071	96,691
Blouses	35,624	179,908	122,218
Forage caps	81,784	4,140	13,164
Canvas fatigue coats	34,775	28,840	20,259
Canvas fatigue trousers	37,390	38,385	21,308
Campaign hats	39,265	189,519	306,677
Drawers:			
Canton flannel	66,804	74,470	30,128
Summer	10,502	236,491	272,856
Leggings	36,479	133,815	263,853
Overcoats	17,016	4,410	10,967
Rubber ponchos	6,822	197,139	102,358
Dark-blue flannel shirts	36,099	315,098	238,574
Shoes:			
Barrack	14,129	38,306	22,692
Calfskin	57,017	299,475	216,961
Stockings:			
Cotton	249,746	617,990	556,882
Wool	73,959	31,137	20,336
Trousers:			
Foot	59,406	175,630	145,889
Mounted	19,117	18,005	28,621
Undershirts:			
Cotton	56,152	185,115	390,557
Wool	29,327	34,404	23,487
EQUIPAGE.			
Tents:			
Common	1,971	19,115	26,561
Conical wall	486	1,128	84
Hospital	144	1,723	2,610
Shelter halves	8,824	247,087	85,512
Wall	923	5,256	2,480
MATERIALS.			
Flannel:			
Blouse	31,241	167,369	37,759
Canton	150,728	221,497	90,634
Shirting	63,556	102,332	42,008
Duck, cotton for tents, all kinds	170,568	932,797	173,401
Kersey, sky-blue, 22-ounce	104,244	159,045	35,936

The accompanying Statement D shows the articles of clothing and equipage that were sent just prior to, as well as during, the period of actual hostilities, and subsequent thereto, to the various distributing depots and camps, and a careful perusal will show the work that has been accomplished in so comparatively short a period. In this connection it is proper to state that many of the States which contributed toward filling the quota of volunteers of the first call held their men in camps before they were mustered into the United States service,

and when turned over to the General Government they were in many cases without proper clothing; especially was this the case in regard to underclothing and shoes.

It was from this source that the principal complaints regarding the insufficiency of the clothing supplies arose; nor is it strange that people unfamiliar with the state of affairs existing at the time of the outbreak of hostilities can not appreciate the difficulties that had to be overcome; and the above figures show conclusively what has been accomplished in the matter of supplying the Army with the clothing and equipage necessary for its efficiency and comfort. In 1861, after a much longer lapse of time, many regiments went to the front without uniforms. Even tentage had to be imported from Europe, and the records of the Department show that as late as December, 1861, nine months after the commencement of the war, men were insufficiently clad to perform their duties at the very capital of the nation.

No great difficulties were met in equipping the troops enlisted under the second call, as, by a better cooperation between State officers and the War Department, supplies were delivered at points of muster in advance.

RECEIPTS AND EXPENDITURES.

The annual appropriation for clothing and equipage for the fiscal year ending June 30, 1898	\$1, 050, 000. 00
The appropriation to supply deficiencies for support of the Army, under act of Congress, approved May 4, 1898	10, 000, 000. 00
To which were credited during the last fiscal year the following amounts:	
Reimbursements on account of issues to the militia of the States and Territories	189, 248. 37
Collections by Pay Department on account of clothing drawn by the enlisted men in excess of their allowance, from purchases of discharges by enlisted men under section 4, act of Congress of June 16, 1890; also from sales to officers, to the militia, and surveying expeditions authorized by law	95, 125. 61
Total	11, 334, 373. 98
The remittances to officers of the Quartermaster's Department at the general depots and elsewhere for the purchase and manufacture of clothing and equipage and other expenditures chargeable to—	
Annual appropriation	\$1, 321, 435. 91
Deficiency appropriation	4, 208, 513. 87
Requisitions issued on settlements made at Treasury of accounts and claims	464. 68
The amount refunded to the appropriation for arming and equipping the militia on account of clothing and equipage supplies returned to the Quartermaster's Department	197. 60
Total	5, 530, 612. 06
Leaving a balance of	5, 803, 761. 92
available in the Treasury of the United States on the 30th of June, 1898.	
To this amount should be added the sum of	26, 000, 000. 00
appropriated by Congress July 7, 1898, and not yet drawn upon, making the total amount available for the purchase of clothing and equipage	31, 803, 761. 92

Of this amount, \$7,229,997.07 were required on the 15th of August last to pay for all expenditures on account of clothing and equipage incurred by this Department up to said date.

The regular appropriation by Congress for clothing and equipage for the fiscal year ending June 30, 1899, is \$975,000, which as yet has not been drawn upon.

REMITTANCES.

The following are the amounts that were remitted to officers during the last fiscal year from the annual and deficiency appropriations:

Depot at Philadelphia, Pa.	\$2, 669, 383. 20
Depot at Jeffersonville, Ind.	97, 703. 30
Depot at San Francisco, Cal.	672, 294. 64
Depot at St. Louis, Mo.	98, 323. 44
Depot at Washington, D. C.	2, 658. 75
Depot at New York	1, 209, 923. 55
Depot at Baltimore, Md.	122, 119. 50
Chief Quartermaster, Department of the East.	140, 139. 78
Chief Quartermaster, Department of California.	100, 570. 00
Chief Quartermaster, Department of the Lakes.	339, 849. 48
Other departments, depots, and posts.	76, 984. 14
Total.	5, 529, 949. 78

COLLECTIONS BY PAY DEPARTMENT.

There were placed to the credit of the appropriation for clothing and equipage for the fiscal year 1897-98, from collections by the Pay Department, the following amounts, viz:

On account of clothing drawn by enlisted men in excess of their clothing-money allowance.	\$38, 509. 80
On account of purchases of discharges by enlisted men under section 4 of the act of Congress approved June 16, 1890, and which, under the decision of the Secretary of War, are placed to the credit of the appropriation for clothing and equipage.	4, 625. 00
Total.	43, 134. 80

ISSUES TO THE MILITIA.

The following are the issues of clothing, equipage, and other stores that were made to the governors of the several States and Territories, for use of the militia, under the provisions of the act of Congress of July 1, 1897, for which the respective appropriations of the Quartermaster's Department have been reimbursed from the appropriation for arming and equipping the militia, viz:

States and Territories.	Clothing and equipage.	Regular supplies.	Army transportation.
Alabama.	\$3, 658. 78		
Arizona.	953. 72		
Arkansas.	10, 536. 67		
California.	466. 50	\$292. 50	
Colorado.	339. 98		
Connecticut.	7, 148. 43		
Delaware.	4, 501. 26		
District of Columbia.	4, 093. 43	84. 74	
Florida.	1, 839. 42		
Georgia.	3, 046. 16		
Idaho.	830. 29		
Illinois.	4, 558. 72		
Indiana.	510. 54		
Iowa.	6, 713. 56		
Kansas.	2, 492. 82		
Kentucky.	4, 810. 57		
Louisiana.	2, 517. 18		
Maine.	1, 281. 17		
Maryland.	692. 72		
Massachusetts.	6, 673. 57		
Michigan.	11, 860. 51		
Minnesota.	68. 76		
Mississippi.	2, 520. 65		

States and Territories.	Clothing and equipage.	Regular supplies.	Army transportation.
Missouri	\$8, 670. 51	\$96. 00	.....
Nebraska	3, 601. 97		.....
Nevada	1, 041. 87		.....
New Hampshire	997. 16		.....
New Jersey	5, 344. 77		.....
New Mexico	2, 450. 04		.....
New York	574. 64		.....
North Carolina	6, 790. 80		.....
North Dakota	3, 460. 16		.....
Ohio	14, 688. 26		\$284. 85
Oklahoma	1, 077. 28		.....
Pennsylvania	8, 102. 12		.....
Rhode Island	2, 354. 40		.....
South Carolina	6, 244. 56		.....
South Dakota	2, 478. 80		.....
Tennessee	7, 028. 51		.....
Texas	9, 772. 94		.....
Utah	1, 184. 09		.....
Vermont	1, 673. 99		.....
Virginia	10, 780. 33	. 78	.....
Washington	4, 078. 48		.....
West Virginia	943. 78		.....
Wisconsin	896. 10		.....
Wyoming	1, 362. 18		.....
Deduct credit placed to allotment of State of Indiana	\$189, 309. 45	474. 02	284. 85
Deduct credit placed to allotment of State of Maine	10. 00		.....
	187. 60		.....
Total	189, 111. 85	474. 02	284. 85

a \$61.08 of this amount was not actually settled by the Treasury Department during the fiscal year, and will appear in the next annual report.

SALES TO THE MILITIA.

There were sold by this Department during the fiscal year to the governors of the following States, under the act of Congress approved February 24, 1897, clothing, equipage, and other supplies to the total value of \$20,509.71, viz:

States.	Clothing and equipage.	Army transportation.
Alabama	\$685. 68	\$17. 82
Arizona	289. 85	2. 51
Michigan	11, 118. 50	.....
Pennsylvania	8, 314. 50	81. 85
Total	20, 509. 71	101. 18

SALES TO THE UNITED STATES MARINE CORPS.

Notwithstanding the great demand upon the Department from the Army for tentage, the Quartermaster-General, upon the request of the Commandant of the United States Marine Corps, recommended and obtained authority from the Secretary of War to sell to said officer—

Hospital tents, complete	6
Wall tents, complete	150
Shelter tent halves, with poles and pins	2, 000

Also a considerable quantity of spare parts for tentage. The total amount realized from said sale amounted to \$2,882.75, all of which has been placed to the credit of the appropriation for clothing and equipage.

SALES TO THE GEOLOGICAL SURVEY.

Under paragraph 3692, Revised Statutes, and under special authority of the Secretary of War, there were sold to the Director of the United States Geological Survey, for use of various surveying parties in the field, tents to the value of \$229.22, which amount has been placed to the credit of the appropriation for clothing and equipage.

SALES AT AUCTION.

There was realized at the general depots of the Quartermaster's Department, from sales of old pattern and condemned articles of clothing, equipage, cuttings, etc., the sum of \$8,404.24, all of which has been covered into the Treasury of the United States and credited to miscellaneous receipts as required by law. The expenses connected with making these sales amounted to \$212.76, which have been paid from the appropriation for clothing and equipage.

CLOTHING FOR DISCHARGED PRISONERS.

Under the act of Congress approved March 16, 1896, all prisoners upon release from confinement under court martial sentences are to be furnished with a suit of outer clothing to the value of \$10 per suit. Under this provision of the law there were remitted to various officers during the fiscal year \$4,370 from the appropriation for the support of the Army. The remittance on this account during the previous fiscal year amounted to \$4,221.25.

ISSUES TO INDIAN PRISONERS OF WAR.

There are held in captivity at Fort Sill, Okla., 298 Apache Indian prisoners of war, consisting of 68 men, 105 women, 70 boys, and 55 girls, the sustenance of which, except as to subsistence, falls upon the Quartermaster's Department.

The following are the expenditures connected therewith, viz:

Fuel.....	\$2,362.06
Forage.....	2,755.80
Transportation.....	746.00
Clothing and equipage.....	1,170.14
Employees.....	1,200.00
Total.....	8,234.00

a decrease of \$3,420.06 from the expenditures during the previous fiscal year.

Independent of the routine work connected with purchases, manufactures, and issues, much thought has been devoted to studying the questions connected with improving the quality of the clothing and equipage supplies, among which may be named the following particular items:

BLOUSES—NEW PATTERN.

As indicated in the last annual report of the clothing-supply branch, several sets of blouses of new and revised pattern, based upon actual measurements taken of several hundred men of the different arms of the service, were tried at various posts, and it was found that a satisfactory solution had been reached. The new-pattern blouses consist of nine sizes, instead of six, as heretofore. Standards and specifications were

adopted, and manufactures had just been ordered when the war with Spain began. It was found impossible at this particular time to start the new enterprise, and consequently all blouses purchased and manufactured during the last five months conformed to the old pattern.

SHOES.

Shoes made of somewhat lighter calfskins and upon lasts conforming more closely to the anatomy of the human foot have also been adopted, and contracts had been entered into just prior to the commencement of the war. Those procured are of unexceptionable quality and make. hand sewed, and many manufacturers who have carefully examined both the adopted lasts and shoes declared that they could not suggest further improvements. All shoes now being procured under the contracts awarded within the last two months conform to these new patterns, except that the soles are permitted to be sewed on the Goodyear welt machine. The advisability of substituting the latter mode of fastening the soles will form the subject of future consideration, as well as several suggestions that have been made by prominent manufacturers to permit Cordovan and Titan calfskins to enter into competition.

The shoes procured at the outbreak of hostilities, and which were found to be essential for the immediate equipment of the organizations then being mustered into the service, did not conform to the newly adopted army shoes. The latter class of shoes is not manufactured for the trade. Shoes of various descriptions had to be purchased, and it was found that as a rule they were good and serviceable. In a few instances they proved otherwise, but this could not be avoided.

CLOTHING OF LIGHTER TEXTURE FOR SOUTHERN AND TROPICAL COUNTRIES.

The question of furnishing the enlisted men of the Army stationed in the South and in tropical countries with clothing suitable for those latitudes has also formed the subject of consideration.

Pending a final conclusion, the calls from the Army for cotton clothing have been met by supplying twilled and plain duck garments to the troops in Cuba, Porto Rico, and as far as practicable to the various organizations in camp in this country.

UNDERWEAR.

The Army has been abundantly supplied with light cotton underwear, which has undoubtedly materially aided in alleviating the condition of the men. Steps have also been taken to procure an adequate supply of wool knit undershirts of a much better quality than formerly issued to the Army. The grade of wool will be much finer, the per centum of cotton will be 40 instead of 50, and they will be of light and heavy qualities, suitable for cold and warm climates.

MOSQUITO HEAD NETS, RUBBER PONCHOS, AND HAMMOCKS.

Of these articles of equipment, so necessary to protect the men in the unhealthy climate of Cuba, an entire outfit has also been procured and furnished by this Department. To what extent they have been made use of in active campaign this office has as yet not been informed.

BADGES AND DESIGNATING FLAGS.

General Orders, No. 99, c. s., published by the Adjutant-General of the Army, prescribe the badges and flags for the several brigades, divisions, and corps composing the Army. Of these a complete outfit for 8 corps has been procured and distributed.

COLORS AND GUIDONS.

Contracts for such colors and guidons as might be needed by the various volunteer organizations were also entered into. They have been procured as fast as applied for. Under existing regulations these colors should all be embroidered in silk; but it being impossible to have such work executed within a reasonable time, the Secretary of War approved the recommendation of the Quartermaster-General that the inscription and coat of arms be painted in the same manner as was done during the civil war.

BAND INSTRUMENTS.

Great difficulty was experienced in supplying the many military bands with instruments, as required by paragraph 1201, Army Regulations. They were procured by purchase in open market, of the best domestic production obtainable, and it was even found necessary to resort to the purchase of some of foreign make. It has been found impossible to supply all the regiments, and owing to the sudden cessation of hostilities all action to supply instruments to volunteer organizations will be suspended until the final status of each particular regiment shall have been determined.

GRATUITOUS ISSUES OF CLOTHING.

By direction of the Secretary of War, all the clothing of the troops returning from Cuba will be destroyed to prevent contagion, and it has been decided to issue to each of the men, free of charge, another suit in lieu of the one destroyed. Similar issue will also be made to the men in hospitals whose clothing has been destroyed for like reasons.

TENTS OF DRAB COLOR.

The advisability of changing the color of the tentage for the Army to a drab, similar to certain equipments supplied by the Ordnance Department, has been under consideration for several years. In order to ascertain whether a change would be desirable, the Depot Quartermaster at Philadelphia, on the 28th of August, 1897, was directed to dye for experimental purposes sufficient of the unbleached duck to manufacture 100 wall tents and flies. The tents thus made were distributed for trial, one to each post in the Army, and reports called for.

These reports were almost unanimous in favor of the proposed change, for the following reasons:

1. The glare of the sun will be avoided.
2. In time of hostilities the tents will be less discernible from a distance.
3. The difference in appearance between old and new canvas will be less marked, thereby decreasing to a certain extent the demand for new tentage.

4. The dyed canvas may be found to lessen damage from mildew, to which all unbleached duck, if not properly dried before storage, is subjected.

The only objection was made by a few officers who are of the opinion that the tent, when closed on dark days, is not sufficiently light on the inside for reading or writing. Many officers, however, are of distinctly opposite views. They prefer even a darker color.

On the 14th of December last a report was made to the Secretary of War recommending that the drab-colored duck for the tentage be adopted, to be of the same shade as the duck used by the Ordnance Department, and that this be also the future color for the fatigue hat, fatigue clothing, leggings, and shelter tent. In order to insure a fast and even color, it would be well to have the material dyed in the fiber.

These recommendations were approved by the Secretary of War, and the Department was contemplating how best to inaugurate the changes involved, when other and more important demands were made upon this office.

The subject, however, was never lost sight of, and considerable duck and tentage recently purchased has been of the new color. Sufficient time to obtain reports upon results has as yet not elapsed.

COMBINED SHELTER TENT AND CLOTHING ROLL.

After examining the sample of a combined shelter tent and clothing roll, submitted by Maj. Charles W. Williams, Quartermaster, U. S. A., referred to in the last annual report, and believing that the same possessed qualities equally as good as those contained in a similar tent brought to the attention of the Department by another inventor, and Major Williams consenting, this Department concluded to advise the officer named to take out letters patent. Application was made to the Secretary of War, on the 8th of November last, under paragraph 2 of the act of Congress making appropriations for sundry civil expenses for the Government for the fiscal year ending June 30, 1884, and for other purposes. A patent was granted on the 4th of January last to Major Williams, under section 4886 of the Revised Statutes, without the payment of any fee, so that the Government or any of its officers or employees in the prosecution of work for the Government or by any other person in the United States may make use of the invention without the payment of any royalty. The number of the patent is 596767. None have thus far been manufactured.

CLOTHING AND EQUIPAGE FOR TROOPS IN ALASKA.

All the troops ordered by the War Department to the Territory of Alaska during the last and present fiscal years have been supplied with sufficient quantities of clothing and equipage suitable only for the extreme cold weather prevailing in that country. Among the articles furnished were some of the improved conical wall tents, invented by Maj. Charles W. Williams, Quartermaster, U. S. A., referred to in last year's annual report.

CONCLUSION.

In concluding this report, I desire to call special attention to one important fact, which has conclusively been demonstrated during the period of the preparation for and prosecution of the war just terminating.

It has an important bearing upon the economic side of the question of providing the clothing and equipage supplies for the Army in the future.

Heretofore all the principal articles of clothing and equipage were manufactured at the general depots of the Quartermaster's Department from materials purchased under contracts. This was found to be well adapted to times of peace, but the system was not sufficiently elastic to answer fully in times of war, when the demands are sudden and great. The reason why the department was successful in coping with the difficulties of providing sufficient clothing, and which presented themselves at the commencement of the war, was principally due to purchases under contracts. The prices are entirely in favor of the contract system. All that will be necessary is a rigid and fearless inspection, so that the goods will conform strictly to specification requirements.

The manner of carrying this proposition into effect should form the subject of a very careful future study.

Very respectfully,

WM. S. PATTEN,

Colonel, Quartermaster's Department, U. S. A.

The QUARTERMASTER-GENERAL.

A.—Statement showing articles of clothing, equipage, and materials on hand at principal general depots April 30, 1898.

Articles.	Philadel- phia.	Jefferson- ville.	St. Louis.	San Fran- cisco.	Total.
Blankets	54,597	.....	5,847	924	61,368
Blouses	6,091	19,180	1,459	1,462	28,192
Caps, forage	16,780	.....	7,163	2,727	26,670
Canvas fatigue coats	2,665	1,585	7,204	1,522	12,976
Canvas fatigue trousers, pairs	1,597	589	7,998	1,682	11,866
Drawers, cotton flannel	10,574	19,032	25,600	5,886	61,092
Gauntlets	5,604	.....	2,231	566	8,401
Gloves, Berlin	31,044	.....	70,498	4,495	106,037
Hats, campaign	9,339	.....	3,692	1,356	14,387
Helmets, cork	2,282	.....	6,383	243	8,908
Leggings	43,533	.....	7,545	276	51,354
Overalls	5,460	7,801	6,020	4,765	24,046
Overcoats	6,396	.....	1,840	1,138	9,374
Ponchos	2,635	.....	1,978	162	4,775
Shirts, dark-blue flannel	10,733	7,448	11,265	1,318	30,764
Shoes:					
Barrack	21,684	.....	15,972	1,988	39,644
Leather	14,122	.....	15,746	4,071	33,939
Stable frocks	4,802	9,632	3,133	357	17,924
Stockings:					
Cotton	250,734	.....	56,345	13,985	321,064
Wool	72,883	.....	17,452	3,995	94,330
Suspenders	8,828	.....	2,216	653	11,697
Trousers:					
Foot	12,421	.....	6,348	2,231	21,000
Mounted	10,154	.....	5,794	2,126	18,074
Undershirts:					
Cotton	104,959	.....	16,373	1,633	122,965
Wool	55,127	.....	18,267	1,740	75,134
Axes	1,650	.....	1,652	381	3,683
Ax helves	1,274	.....	1,697	293	3,264
Bedsacks	85	.....	422	474	981
Books, all kinds	2,981	.....	935	265	4,181
Bugles, light artillery	49	.....	.....	7	56
Colors and standards	8	.....	24	.....	32
Drums	85	.....	59	13	157
Fifes	890	.....	.....	113	1,003
Flags:					
Garrison	58	.....	4	8	70
Post	253	.....	35	42	330
Storm and recruiting	457	.....	148	73	678
Guidons	12	.....	.....	9	21

A.—Statement showing articles of clothing, equipage, and materials on hand, etc.—Cont'd.

Articles.	Philadel- phia.	Jefferson- ville.	St. Louis.	San Fran- cisco.	Total
Hand litters.....		2,204	13		2,216
Hatchets.....	565		988	1,095	2,648
Hatchet helves.....	882		2,647	1,371	5,900
Kettles, camp.....	1,310	20	263	305	1,898
Mess pans.....	1,255	12,392	5,426	535	19,608
Mosquito bars.....	4,450		127	471	5,048
Mosquito head nets.....	1,207		63	600	1,870
Pickaxes.....	82	797	205	158	1,242
Pickaxe helves.....	761		873	1,064	2,698
Shovels:					
Long handle.....	1,554		707		2,261
Short handle.....	2,020		901	162	3,083
Spades.....	767	484	7,028	650	8,929
Trumpets.....	221	1	313	29	564
Tents:					
Common.....	983		334	186	1,503
Conical wall.....	430		150	25	605
Hospital.....	128		130	33	291
Shelter halves.....	9,724		1,723	1,245	12,692
Wall.....	274		217	20	511
Various kinds.....	50	11	4		65
Blouse flannel.....yards..	110,210	51,822	975	6,608	169,615
Blouse lining flannel.....do..			3,333		3,333
Canton flannel.....do..	51,176	41,174	4,264	7,055	103,669
Duck:					
12-ounce.....do..	132,041				132,041
10-ounce.....do..	104,479				104,479
8-ounce.....do..	53,676				53,676
Bleached.....do..	36,315	7,725		4,983	49,023
Brown.....do..	16,719	789		340	17,748
Kersey:					
Dark blue.....do..	7,500				7,500
Sky blue.....do..	99,814		368	12,600	112,782
Shirting flannel.....do..	56,747	13,970	537	2,504	73,758

B.—Statement showing the quantities of the principal articles of clothing, equipage, and materials purchased or contracted for during the fiscal year ending June 30, 1898, and up to August 15, 1898; also showing the various places at which they were procured.

Articles.	Philadelphia.				San Francisco.				St. Louis.			
	From June 30, 1897 to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.	From June 30, 1897 to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.	From June 30, 1897 to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.
Blankets.....	22,000	216,000	177,650	415,650		27,611	3,125	30,726		4,100		4,100
Bonuses, lined.....						12,232	7,000	19,232				
Boots.....		1,025		1,025								
Canvas fatigue coats.....						24,022	7,579	31,601				
Canvas fatigue trousers.....						24,011	7,579	31,590				
Caps:												
Forage.....	77,000	220,000		307,000								
Fur.....	9,500			9,500								
Drawers:												
Canton flannel.....		50,000		50,000								
Summer.....	43,340	260,000	100,000	403,340		60,638	9,068	69,726		10,000	396	10,396
Wool.....							12,879	12,879				
Field and summer uniforms.....						30,000	10,000	40,000				
Gauntlets:												
Buckskin.....	21,504	62,377	50,000	133,881								
Fur.....	7,500			7,500								
do.....	100,000	80,000		180,000								
Gloves, Berlin.....												
Hats:												
Campaign.....	18,040	240,950	80,000	478,990		7,396	5,014	12,410		10,000	25,600	35,600
Canvas.....	20,000	25,480		45,480								
Helmets:												
Cork.....	4,000	20,600	25,000	49,600		3,652		3,652				
Untrimmed.....	4,000		35	4,035								
Leggings.....	11,000	150,000		164,000		4,000		4,000				
Overcoats.....												
Overshoes.....	10,500			10,500								
Ponchos.....	32,925	215,800	105,000	353,725		1,585		1,585				
Shirts:												
Dark blue flannel.....		55,900	17,050	72,950		27,319	18,000	45,319		6,867	9,083	15,400
Gingham and muslin.....						91,241	22,000	113,241				
Shoes:												
Barack.....	25,000			25,000		1,164	51,093	51,093				
Balsam.....	350,223	19,419		400,002						68	5,420	5,488
Stockings:												
Cotton.....	220,000	150,000		370,000		197,669	49,000	176,669				
Wool.....	40,006			40,006		22,764	21,178	44,942				
Suspenders.....	96,065	100,000		196,065		5,000	11,000	16,000				
Trousers:												
Kersey, foot.....		125,000		125,000		12,256	7,000	19,256				
Kersey, mounted.....		15,000		15,000								

Underbirds:	40,000	\$20,000	100,000	400,000		37,847	9,860	47,707		10,000	10,000
Cotton.....						25,999	12,879	38,878	1,280	7,720	10,000
Wool.....						2,350	1,750	5,750	5,000	14,000	20,000
Ases.....	1,000	28,500	18,200	42,700	2,000		2,000				
As halves.....		2,000					7,000				
As slings.....		15,000	20,000	35,000		40,029					
Barrack bags.....											
Bedbags.....											
Bedbags.....											
Bedsteads.....	2,000	1,000	3,000	6,000							
Books:											
Company.....		2,093	1,200	3,293							
Post.....		225	100	325							
Regimental.....		825		325							
Brooms, corn.....	10,000			10,000	3,000			3,000	10,000		10,000
Brushes, scrubbing.....	15,000			25,000							
Bugles, light artillery.....		10,000		25,000							
Chairs, barrack.....	2,000	400		2,000			300	300	3,000		3,000
Color belts and slings.....			250	1,275			12	12			
Drums.....	25	1,621	80	1,764							
Drum slings.....	63	3,400		3,400							
Fifes.....		1,500	500	2,000							
Flags:											
Garrison.....		100	50	150			48	48			
Post.....		200	100	300							
Storm and recruiting.....		350	250	600							
Hammocks.....		15,000		15,000							
Hand litters.....		250		250							
Hatchets.....		10,400	5,000	15,400		179	1,700	2,679	2,000	7,000	12,000
Hatchet helms.....		11,568	20,600	32,168		1,000	1,600	2,600	10,000	10,000	22,000
Hatchet slings.....		2,000		2,000			200	200			
Kettles, camp.....	1,500	15,002	5,000	21,002		1,779	1,080	2,859	7,500	2,499	9,999
Mattresses.....	6,500	1,000	3,000	10,500			1,000	1,000			
Mattress covers.....							7,000	7,000			
Mosquito bars.....		25,000		25,000		25,000	40,000	40,000			
Mosquito head nets.....		50,000	30,000	80,000			5,000	30,000			
Musado pouches.....			1,775	2,050			820	2,270			
Pickaxes.....	275	5,425	5,000	10,425		1,450	1,200	2,550	9,000		9,000
Pickax helms.....		4,896	10,694	15,490		1,350	1,200	2,550	14,000		14,000
Pillows.....			3,000	7,000		25		25			
Shovels:											
Long handles.....		2,100		2,100		1,200	550	1,750	4,000	1,200	5,200
Short handles.....		4,600	5,000	9,600			120	1,020	5,000	1,800	6,800
Spades.....		1,500	5,705	7,205		1,007	200	1,207	7,000	1,500	8,500
Stencils.....		1,500	1,000	2,500			3	16			
Tents:											
Common.....		39		39		200	1,200	1,400	2,715	743	3,458
Conical wall.....		1		1			265	265	150		150
Hospital.....							250	250		50	50
Shelter halves.....		10,000		10,000		41,100	10,000	51,100	8,189		8,189
Wall.....		197		197		801	400	1,201	799	300	1,099
Trumpets.....	250	750	3,810	4,810							

B.—Statement showing quantities of principal articles of clothing, equiPAGE, and materials purchased or contracted for during the fiscal year, etc.—Cont'd.

Articles.	Philadelphia.				San Francisco.				St. Louis.			
	From June 30, 1897, to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.	From June 30, 1897, to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.	From June 30, 1897, to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	Total.
Whistles.....			2,000	2,000								
Men's pants.....		10,000	15,727	25,727								
Buttons, line:												
Large.....	1,200	21,445	8,473	31,117		1,300		1,300				
Small.....	500	18,125	3,534	22,459						15,000		15,000
Cloth:												
Dark blue.....	5,000			5,000								
Fading.....	2,700	3,010		5,710		433	560	993				
Fading.....	1,800	21,000		22,800								
Fading.....	1,800	21,000		22,800								
Fading.....	5,000	386,001	75,000	466,001		6,009	2,000	8,009				
Drilling.....												
Duck:												
Bleached.....	25,840			25,840								
12-ounce.....	67,253	230,000		297,253								
10-ounce.....	42,073	180,000	150,000	372,073								
8-ounce.....	100,778	100,000		200,778								
For canvas fatigue clothing.....	25,001	123,853		147,854								
Flannel:												
Blue.....	40,000	221,960		261,960		8,519	3,200	11,719				
Blouse lining.....	8,500	525,000		533,500		737		737				
Canton.....		449,082	200,000	649,082			27,650	27,650				
Cape lining.....	20,000	225,000		245,000								
Overcoat lining.....		232,000		232,000								
Shirting.....	23,114	671,620	4,000	698,734								
Gold lace.....	6,000			6,000								
Jeans:												
Corset.....	35,000	270,000	1,509	306,509								
White.....	10,000	62,500		72,500								
Kersey:												
Sky blue.....	68,754	500,000		628,754		1,098	16,110	17,208				
Dark blue.....			5,500	5,500								
Lasting, black.....												
Muslin, unbleached.....	70,000			70,000								
Padding.....		200,863		200,863		1,890	2,500	4,390				
Black.....		500,600		500,600								
Canvas.....	10,000	170,200		180,200		17,000		17,000				
Serge.....		40,000	1,820	41,820								
Shelter-tent material.....	172,250	562,828	272,000	1,007,078								
Sleeve, black.....		419,250		419,250		4,022		4,022				

B.—Statement showing quantities of principal articles of clothing, equipage, and materials purchased or contracted for during the fiscal year, etc.—Cont'd.

Articles.	New York.			Chicago.			Boston.			Jeffersonville.		
	From May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	Total.	From May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	Total.	From May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	Total.	From May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	Total.
Blankets.....	2,600	38,000	38,600	41,000	17,950	58,950						
Blankets, unlined.....	92,992	255,000	255,000									
Drawers, summer.....	29,110	205,890	235,000	241,168	13,000	254,168	40,000	75,000	115,000			
Field and summer uniforms.....	9,150	98,019	107,169									
Hats, campaign.....	5,000	375,000	375,000	40,800	20,000	60,800						
Leggings.....	13,500	361,500	375,000									
Overcoats.....	125,000	125,000	125,000									
Shirts, dark-blue flannel.....	29,256	121,344	150,600	55,200	3,000	58,200	65,363	142,423	207,786			
Shoes, calfskin.....	49,857	192,743	152,600	105,432	67,729	173,161	22,157	45,100	67,257			
Stockings, cotton.....	181,640	180,200	361,840	152,000	250,000	402,000						
Suspenders.....				105,500	35,000	140,500						
Trousers.....												
Duck.....	4,150	110,850	115,000									
Kersey, foot.....	102,095	141,405	243,500									
Kersey, mounted.....		18,000	18,000									
Undershirts.....				251,464	22,000	273,464	40,000	75,000	115,000			
Cotton.....	110,949	324,051	435,000									
Wool.....	5,448	5,448	5,448									
Axes.....	1,800	1,800	1,800							293	3,000	3,293
Ax helms.....	1,800	1,800	1,800							343	3,000	3,343
Books.....												
Company.....	2,100	1,500	3,600									
Post.....	100	250	350									
Regimental.....	225	250	475									
Drum slings.....	3,000	3,000	3,000									
Hammocks.....	37,000	70,000	107,000	2,000	1,000	3,000						
Hand litters.....												
Hatchets.....	600	600	600									
Hatchet helms.....	600	750	1,350									
Kettles, camp.....	394	394	394									
Mosquito head nets.....	10,000	21,500	37,500									
Pickaxes.....	3,360	3,360	3,360									
Pickaxe helms.....	3,720	3,720	3,720									
Shovels.....												
Long handles.....	3,000	1,000	4,000							6	3,001	3,007
Short handles.....	2,700	2,700	2,700							6	3,000	3,006
Spades.....												
Tents.....												
Common.....	4,518	10,502	15,020	5,185	800	5,985						
Conical wall.....	300	300	300									

B.—Statement showing quantities of principal articles of clothing, equipage, and materials purchased or contracted for during the fiscal year, etc.—Cont'd.

Articles.	Cincinnati.	St. Paul.	Various places.	Total.		
	From July 1 to Aug. 15, 1898.	From Apr. 30 to June 30, 1898.	From Apr. 30 to Aug. 15, 1898.	From June 30, 1897, to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.
Blankets.....	10,000		3,428	22,000	299,187	247,151
Blankets:		5,450				
Lined.....					12,233	7,000
Unlined.....					92,993	162,008
Boots.....					1,025	1,025
Canvas fatigue coats.....					24,023	7,579
Canvas fatigue trousers.....					24,011	7,579
Caps:						
Forage.....				77,000	230,000	307,000
Fur.....				9,500		9,500
Drawers:						
Canton flannel.....					50,000	50,000
Summer.....			5,200	43,340	648,438	1,100,330
Wool.....						12,879
Field and summer uniforms.....					38,150	114,019
Gauntlets:						
Buckskin.....				21,504	62,377	132,881
Fur.....				7,500		7,500
Hats.....				100,000	86,040	180,000
Gloves, Berlin.....						
Campaign.....				18,040	263,346	494,745
Canvas.....				20,000	25,480	45,480
Helmets:						
Cork.....				4,000	24,252	53,263
Untrimmed.....				4,000		4,055
Leggings.....				11,000	207,300	381,500
Overcoats.....					4,000	129,000
Overhoses.....				10,500		10,500
Ponchos.....				32,925	220,385	358,310
Shirts:	3,000					
Dark blue flannel.....						
Gingham and muslin.....					239,784	543,674
Shoes:						
Barback.....					91,241	113,241
Calfskin.....		3,000	8,223	27,950	25,000	51,093
Stockings:					538,681	810,353
Cotton.....					726,199	1,990,999
Wool.....		6,000	5,300	40,006		1,190,948
Suspenders.....					160,596	318,095
Grand total.						

[illegible]

B.—Statement showing quantities of principal articles of clothing, equipage, and materials purchased or contracted for during the fiscal year, etc.—Cont'd.

Articles.	Cincinnati.	St. Paul.	Various places.	Total.			Grand total
	From July 1 to Aug. 15, 1898.	From Apr. 30 to June 30, 1898.	From Apr. 30 to Aug. 15, 1898.	From June 30, 1897, to Apr. 30, 1898.	From May 1 to June 30, 1898.	From July 1 to Aug. 15, 1898.	
Tents:							
Common.....			105		18,887	24,180	43,077
Conical wall.....					451	265	716
Hospital.....			9		447	5,473	5,920
Irregular.....			223		1,244	1,244	1,244
Shelter halves.....					135,773	39,104	174,877
Wall.....			200		5,270	2,712	7,982
Tent overcoats.....				250	16,900	5,100	25,000
Trumpets.....					762	4,128	5,188
Whistles.....						2,000	2,000
Meas pans.....						18,673	58,663
Buttons, line:			1,445		30,990		
Large.....							
Small.....				1,200	22,745	10,682	34,577
Cloth:				500	18,125	6,354	24,979
Dark blue.....							
Facing.....				5,000			5,000
Italian.....				2,700	8,443	560	8,703
Drilling.....				1,500	21,000		22,500
Duck:				5,000	392,944	100,011	497,955
Bleached.....				25,840		20,000	45,840
12-ounce.....				67,253	220,000		287,253
10-ounce.....				42,073	180,000	150,000	372,073
8-ounce.....				100,778	100,000		200,778
For canvas fatigue clothing.....				25,001	122,853	400,000	547,854
Flannel:							
Bionse.....				40,000	330,479	3,200	373,679
Blouse lining.....				8,500	525,737		534,237
Canton.....					449,082	599,429	1,048,511
Cape lining.....	31,779			20,000			245,000
Overcoat lining.....					232,000		232,000
Shirting.....					671,620	4,000	698,734
Gold lace.....				22,114			6,000
Jeans:							
Corset.....				35,000	270,000		305,000
White.....				10,000		62,500	72,500

Kerosene:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Colors and standards.....	23	8	60	90								
Drums.....	45	193	191	429						80	44	
Flags.....	39	437	82	658						12	12	
Flags, all kinds.....	491	187	605	1,183						10	98	
Guidons.....	90	59	57	206								
Hammocks.....	13,091	2,002	15,093	230								
Hand litters.....	169	51	210	453								
Hatchets.....	328	8,958	5,738	10,031	423	2,730		230	48	2,182	48	
Hatchet helvies.....	759	5,952	8,450	15,531				8,153	260	2,717	4,900	
Kettles, camp.....	185	7,316	3,455	10,986	215			3,359	1,350	2,717	9,827	
Mess pans.....	323	8,733	4,956	9,031				215	209	1,166	5,069	
Mosquito bars.....	1,731	4,092	13,602	19,425	1,900	11,177		304	304	1,064	8,913	
Mosquito head nets.....	260	2,601	92	3,295				2,443	2,457	1,064	2,784	
Pickaxes.....	602	8,868	4,790	8,918	165			21	21	284	2,784	
Pickaxe helvies.....	625	3,926	4,818	9,969				968	172	3,901	5,082	
Shovels.....					233			233	1,536	1,622	9,378	
Long-handled.....	41	2,661	11,647	14,352								
Short-handled.....	579	1,798	1,038	3,415		6	1	7	394	787	2,702	
Spades.....	233	2,873	1,552	4,658	210	507		6	647	8,357	5,453	
Tents.....								726	119	8,789	5,149	
Common.....	866	1,960	406	3,212		23		23	571	5,633	6,944	
Conical wall.....	297	464	23	784				142	142	355	6,600	
Hospital.....	52	230	342	634				212	66	212	3	
Shelter halves.....	5,142	144,735	34,962	184,839		2		2	86	17	295	
Wall.....	574	1,064	159	1,797		134	169	303	2,851	8,733	16,084	
Irregular.....									2,145	6,222	1,251	
Trumpets.....	345	878	843	2,066					12	1,225	1,225	
Duck:									22	1,346	6,660	
Tent, all kinds.....	170,568	932,797	173,401	276,766								
Brown.....	29,661	19,048	18,313	67,022	36,077	8,676	15,317	50,070				
Bleached.....	10,000			10,000								
Flannel:												
Blouse.....	12,808	70,733	4,315	87,856	15,190	85,879	27,480	128,549	1,045	1,178	2	
Blouse and overcoat lining.....	48,950		68,100	107,050	9,359	16,275	19,740	44,374	216		2,225	
Canton.....	59,502	109,377	74,934	243,813	81,816	103,632	15,532	201,000	1,567	4,264	5,831	
Shirting.....	83,890	82,578	41,998	158,466	30,470	18,890		39,350				
Kersey:												
Dark blue.....	9,228		10	9,246								
Sky blue.....	70,476	141,778	34,527	246,781					27,371		27,371	

C.—Statement showing in detail the issues of clothing and equipage made during the three periods from July 1, 1897, to April 30, 1898, etc.—Continued.

Articles.	St. Paul, Minn.		Washington, D. C.			Total.		Grand total.
	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	Total.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
Blankets, woolen	5,200	25	5,225			27,559	183,071	96,691
Blouses, lined and unlined						35,624	179,908	122,218
Caps, forage						81,754	4,140	13,164
Canvas fatigue coats						24,775	28,840	20,259
Canvas fatigue trousers						87,890	38,385	21,308
Drawers:								
Canton flannel						66,804	74,470	30,128
do.								
Summer						10,502	236,491	872,856
Field and summer uniforms							28,720	66,944
Gauntlets, leather						14,749	17,297	16,416
Gloves, Berlin						220,967	98,272	66,199
Hat:								
Campaign						39,266	189,519	306,677
Canvas							46,753	44,448
Helmet, cork						7,901	23,845	13,512
Leggings						36,439	183,815	203,855
Overalls						4,501	5,395	7,906
Overcoats						17,016	4,416	10,907
Ponchos and rubber blankets						6,822	197,139	102,358
Shirts, flannel and gingham						36,699	315,098	238,574
Shoes:								
Barraek						14,129	38,308	22,642
Leather						57,017	299,476	216,961
Stable frocks	3,000		3,000			8,681	4,730	4,481
Stockings:								
Cotton	6,000		6,000			249,746	617,900	556,882
Woolen						78,959	31,137	20,386
Suspenders						10,442	72,687	59,872
Trousers:								
Canvas						59,466	175,830	47,408
Foot						19,117	145,889	145,889
Mounted							18,005	28,621
Undershirts:								
Cotton				85		56,153	185,115	390,657
Woolen						29,827	34,404	23,487
Arms						2,025	17,052	9,834
Ar helms				50		6,530	17,034	20,866
Bedsocks				130	900	2,659	4,135	14,818
Books, all kinds						2,176	8,271	8,676
Colors and standards						22	8	60
Drums						59	194	230
Fifes						47	449	103

Flax, all kinds.....						683	226	763	1, 673
Girdons.....						90	59	57	206
Hamrocks.....							45, 901	22, 113	69, 013
Hand litters.....						437		564	1, 052
Hatchets.....					50		10, 619	51	21, 546
Hatchet blades.....					150		1, 205	9, 873	31, 826
Kettles, camp.....					50		2, 192	14, 391	15, 373
Kitchen pans.....					100		7, 015	12, 894	19, 907
Moss pans.....							2, 681	8, 728	33, 084
Mosquito bars.....							4, 200	26, 675	42, 384
Mosquito head nets.....								33, 592	51, 626
Pickaxes.....					50		23, 161	27, 863	50, 789
Pistol holers.....					50		711	18, 163	20, 789
Shovels:									
Long-handled.....							2, 354	7, 923	26, 041
Short-handled.....									
Spades.....					50			14, 107	19, 270
Tents:									
Common.....								14, 496	16, 058
Conical wall.....					856			25, 561	46, 347
Hospital.....								1, 998	1, 998
Shelter halves.....								2, 610	4, 476
Wall.....								85, 512	241, 423
Irregular.....								2, 490	8, 659
Trumpets.....								1, 282	1, 284
Duck:								1, 431	3, 514
Tent, all kinds..... yards.								173, 401	1, 276, 765
Brown..... do.								55, 039	178, 549
Bleached..... do.								11, 189	11, 189
Flannel:									
Blouse..... do.								176	236, 369
Blouse and overcoat lining..... do.								37, 759	169, 735
Canton..... do.								77, 840	462, 909
Shirting..... do.								90, 684	207, 896
Kersey:									
Dark blue..... do.								42, 008	9, 246
Sky blue..... do.								10	299, 235
							159, 045	35, 936	

[illegible]

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., October 20, 1898.

SIR: Under Special Orders, No. 164, Adjutant-General's Office, current series, having been assigned to duty in the office of the Quartermaster-General as one of the principal assistants, in charge of all wagon transportation, and the purchase of all cavalry and artillery horses and regular supplies, etc., while so acting to have the rank of colonel, I have the honor to submit the following report of the operations of that branch for the fiscal year 1897-98, and for period July 1, 1898, to August 31, 1898.

Respectfully,

C. P. MILLER,
Colonel, Quartermaster's Department.

The QUARTERMASTER-GENERAL OF THE ARMY.

The Quartermaster-General supervises and controls, through this branch, the equipment for the transportation service of the Army, including wagons, ambulances, and vehicles, draft and pack animals, and cavalry and artillery horses.

This branch has charge of all matters relating to the procurement and distribution of supplies, stoves, and heating apparatus, and repair and maintenance of same for heating barracks and quarters; of ranges, stoves, and apparatus for cooking; of fuel and lights for enlisted men, guards, hospitals, storehouses, and offices, and for sales to officers; of equipment of bakehouses to carry on post bakeries; of the necessary furniture, text-books, paper, and equipments for the post schools; for the tableware and mess furniture for kitchens and mess halls for enlisted men; of forage and bedding for the public animals of the Quartermaster's Department, and for the authorized number of officers' horses; of straw for soldiers' bedding; of stationery and blank books for the Quartermaster's Department, certificates for discharged soldiers, blank forms for the Paymaster's and Quartermaster's departments, and of the necessary correspondence connected with the work of this branch.

This branch has also charge of matters relating to all contracts to which the Quartermaster's Department is a party.

CONTRACTS.

During the fiscal year ended June 30, 1898, 1,404 contracts were received, examined, and filed in this office. Seven hundred and ten were for 270,543,952 pounds of coal, 61,099 cords of wood, 11,250 bushels of charcoal, 31,173,928 pounds of oats, 54,471,304 pounds of hay, 7,588,200 pounds of straw, 4,015,000 pounds of barley, 4,204,759 pounds of bran, 40,000 pounds of middlings, and 2,297,366 pounds of corn; 49 for transportation; 218 for clothing, camp, and garrison equipage; 98 for leases; 11 for roadways and sidewalks; 25 for water and water supply; 11 for telephone service; 4 for electric supplies; 3 for repair of bridges; 2 for shoeing public animals; 10 for printing; 63 for buildings and building material; 3 for sanitary work; 1 for construction of railroad platform; 2 for granolithic pavement; 2 for illuminating gas; 2 for gasoline; 2 for mineral oil; 1 for fresh beef; 26 for horses and mules; 1 for cobblestone gutters; 18 for heating apparatus; 22 for plumbing; 5 for target ranges; 2 for repair of roads; 1 for repair of wagons; 5 for sewerage system; 2 for boilers and fixtures; 9 for repair of buildings; 1 for steel

trestle and tank; 4 for garbage cremators; 3 for gas piping; 1 for machinery; 3 for drainage and grading; 2 for repair of water tanks; 2 or flagstaffs; 5 for repair of wharves; 1 for construction of wall; 1 for picket fence; 1 for repair of railroad trestle; 1 for repair of steamer; 9 for tableware and kitchen utensils; 1 for rostrum; 1 for flagging and paving blocks; 2 for ambulance harness; 1 for field filters; 1 for sinking well; 3 for field desks; 2 for packing boxes and crates; 2 for water distillers; 1 for filters; 1 for ice plant; 1 for disinfectors; 3 for typewriting machines; 1 for box lockers; 1 for headstones; and 41 for charter of vessels.

During the period from July 1, 1898, to August 15, 1898, 267 contracts were received, examined, and filed in this office. One hundred and twenty-six were for 2,628,533 pounds of oats, 4,348,320 pounds of hay, 195,833 pounds of bran, 779,800 pounds of straw, 469,000 pounds of barley, 25,833 pounds of corn, 50,875,100 pounds of coal, 16,884 cords of wood, and 1,950 bushels of charcoal; 9 for transportation; 22 for leases; 2 for constructing steam launches; 8 for buildings; 29 for charter of vessels; 6 for water system; 1 for field desks; 36 for clothing, camp, and garrison equipage; 7 for tableware and kitchen utensils; 5 for telephones; 1 for mineral oil; 2 for illuminating gas; 1 for field filter; 4 for remodeling heating apparatus; 1 for repair of buildings; 1 for plumbing; 1 for ambulances; 1 for lamps; 3 for packing boxes; and 1 for gas piping.

PURCHASES AT GENERAL DEPOTS.

The following are the payments made by quartermasters for purchases for the Army at general depots for use thereat and for shipment elsewhere during the fiscal year ended June 30, 1898, from appropriations pertaining to that period:

Depot.	Regular supplies.	Incidental expenses.	Barracks and quarters.	Army transportation.	Total.
New York	\$57,249.81	\$7,469.97	\$228.98	\$23,661.93	\$88,610.69
Philadelphia	18,072.65	726.62	1,691.37	42,471.16	62,961.80
Jeffersonville	40,924.05	1,776.35	73.35	28,594.50	71,368.25
San Francisco	59,221.07	4,527.62	20,806.85	32,162.89	116,718.43
Washington	69,489.53	1,215.61	247.39	116,362.83	187,315.36
St. Louis	10,161.61	2,704.84	4.50	28,318.24	41,189.19
Total	255,118.72	18,421.01	23,062.44	271,571.55	568,163.72

TABLEWARE AND KITCHEN UTENSILS.

Total cost of all tableware and kitchen utensils purchased at Philadelphia depot during fiscal year 1897-98 amounted to \$19,593.66.

Field ranges, bread ovens, field desks, and paulins purchased from July 1, 1897, to August 31, 1898.

	July 1, 1897, to Apr. 1, 1898.	Apr. 1 to July 1, 1898.	July 1 to Aug. 31, 1898.	Total.	
				Number.	Cost.
Field ranges		4,130	1,000	5,130	\$106,742.00
Bread ovens		100	50	150	20,510.00
Field desks		4,167	1,267	5,434	33,471.80
Paulins		2,480	2,100	4,580	87,644.20
Grand total					253,364.00

REPORT OF THE SECRETARY OF WAR.

Public animals purchased.

FROM JULY 1, 1897, TO APRIL 1, 1898.

	Number of animals.	Total cost.	Average cost.
Cavalry horses	668	\$84,274.50	\$126.15
Artillery horses	118	16,260.00	137.79
Draft horses	89	5,776.50	148.11
Riding horses	1	123.75	123.75
Draft mules	315	21,466.43	68.44
Pack mules	38	2,771.00	72.93
Total .....	.....	130,672.83	.....

FROM APRIL 1, 1898, TO JUNE 30, 1898.

Cavalry horses	8,669	\$863,232.83	\$99.57
Artillery horses	1,776	237,478.11	133.71
Riding horses	1,944	141,890.00	72.98
Beil horses	32	1,595.00	51.45
Draft horses	1,132	141,738.75	124.67
Pack horses	40	1,200.00	30.00
Draft mules	13,719	1,515,976.90	110.50
Pack mules	2,667	221,774.00	83.15
Total .....	.....	3,124,873.58	.....

FROM JULY 1, 1898, TO AUGUST 31, 1898.

Cavalry horses	2,074	\$215,581.00	\$108.93
Artillery horses	775	95,329.00	124.27
Riding horses	171	22,450.00	131.28
Draft horses	5	825.00	165.00
Draft mules	3,796	411,631.50	108.43
Total .....	.....	746,816.50	.....

Wagons and harness purchased.

FROM JULY 1, 1897, TO APRIL 1, 1898.

	Number of each.	Total amount.	Average cost.
Spring wagons	8	\$2,295.00	\$286.87
Wagonettes	4	944.00	236.00
S. S. Harness	30	900.00	30.00
Total .....	.....	4,139.00	.....

FROM APRIL 1, 1898, TO JUNE 30, 1898.

Harness, S. S.	22,437	\$279,437.13	\$12.41
Army wagons	304	29,667.00	97.59
Escort wagons	100	7,500.00	75.00
Farm wagons	3,566	234,880.00	65.87
Spring wagons	61	17,021.00	279.03
Wagonettes	8	682.00	237.53
Ambulances:			
Rucker	400	102,950.00	257.37
Red Cross	25	5,847.50	233.90
Miscellaneous wagons	210	11,799.00	56.19
Total .....	.....	688,784.23	.....

Wagons and harness purchased—Continued.

FROM JULY 1, 1898, TO AUGUST 31, 1898.

	Number of each.	Total amount.	Average cost.
Harness, S. S.	5,575	\$80,012.05	\$14.36
Army wagons	300	31,800.00	106.00
Escort wagons	9	1,084.75	120.53
Farm wagons	20	4,082.75	104.17
Spring wagons	9	1,197.00	133.00
Wagonettes	5	858.00	171.60
Ambulances:			
Rucker	100	20,000.00	200.00
Red Cross	34	7,412.00	218.00
Miscellaneous wagons	14	1,849.50	96.39
Total		147,776.05	

Total number of animals, wagons, harness, etc., purchased during the period from April 1, 1898, to August 31, 1898, inclusive.

Cavalry horses	10,743
Artillery horses	2,551
Pack horses	40
Draft horses	1,137
Riding horses	2,115
Bell mares	32
Draft mules	17,515
Pack mules	2,667
Harness, S. S.	28,012
Army wagons	604
Escort wagons	109
Farm wagons	3,606
Spring wagons	70
Wagonettes	8
Miscellaneous wagons	224
Ambulances:	
Rucker	500
Red Cross	59

COAL CONTRACTED FOR FOR TRANSPORT VESSELS.

Ten thousand tons (more or less, as Government may require) Georges Creek Big Vein Cumberland coal, at \$3.75 per ton of 2,240 pounds, delivered as follows:

	Tons.
Tampa, Fla.	3,306
Fernandina, Fla.	5,547
Total	8,853

Ten thousand tons (more or less, as Government may require) Georges Creek Cumberland coal, at \$4.05 per ton of 2,240 pounds, delivered as follows:

	Tons.
Santiago, Cuba	3,978
Ponce, Porto Rico	6,422
Total	10,400

One thousand two hundred and twenty-five tons Pocahontas coal, at \$3.75 per ton of 2,240 pounds, delivered at Port Tampa, Fla. Total for Port Tampa, 1,225 tons.

COAL FOR MANILA, FOR TRANSPORT VESSELS.

Five thousand two hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Three thousand to 6,000 tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Four thousand eight hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Total for Manila, 16,000 tons.

COAL FOR HONOLULU, FOR TRANSPORT VESSELS.

Nine thousand tons Nanaimo coal, at \$7.50 per ton.

Three thousand nine hundred tons Wallsend coal, at \$9 per ton.

Five thousand tons Seaham, Wallsend, or Pacific Cooperative coal, at \$9 per ton.

Two thousand nine hundred tons Cooperative Wallsend coal, at \$8.25 per ton.

Two thousand seven hundred tons coal equal to Seaham or Wallsend, at \$7.50 per ton.

Three thousand tons Wallarah coal, at \$7.37½ per ton.

Two thousand one hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$7.50 per ton.

Total for Honolulu, 28,600 tons.

RÉSUMÉ.

	Tons.
Tampa, Fla	3,306
Fernandina, Fla	5,547
Santiago, Cuba	3,978
Ponce, Porto Rico	6,422
Port Tampa, Fla	1,225
Manila, Philippine Islands	16,000
Honolulu, Hawaiian Islands	28,600
Total	65,078

Very respectfully,

C. P. MILLER,
Colonel, Quartermaster's Department, U. S. A.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., October 15, 1898.

GENERAL: I have the honor to submit my report of the work of the construction and repair division of this office during the past fiscal year:

Congress, by the act making appropriations for the support of the Army, approved March 2, 1897, under head of "Barracks and quarters," provided	\$750,000.00
And in the deficiency act of May 4, 1898, the additional sum of	300,000.00

Total to be accounted for	1,050,000.00
Authorized for construction and repairs	\$645,157.59
Expended for rent of offices, barracks, quarters, camp grounds, etc., so far as reported	98,890.32
Expended for rent of recruiting stations, lodgings for recruits, etc	19,227.70
	<u>763,275.61</u>

Available balance on June 30, 1898, from the appropriations above specified (approximately)	286,724.39
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NEW CONSTRUCTION.

During the year there has been authorized from the barracks and quarters appropriation, for the erection of public buildings at different military posts, consisting of barracks, officers' quarters, storehouses, stables, etc., and for temporary buildings at points where troops have been encamped, the sum of \$376,999.16.

For the construction and repair of hospitals at military posts already established and occupied, there has been authorized from the appropriation for that purpose expenditures amounting to \$74,816.84.

REPAIRS.

There has been authorized for repairs, alterations, and improvements in connection with public buildings, for the purchase of building materials and tools at various posts, for tent flooring for troops in camp, etc., from the barracks and quarters appropriation expenditures amounting to \$268,158.43.

The amounts allotted to the different military departments (as existing on June 30, 1898) and to depots, etc., are shown in the following statement:

Recapitulation of the expenditures authorized for construction, repairs, etc., from the appropriations for barracks and quarters, 1897-98.

Department, depot, etc.	Construction.	Repairs.	Total.
Department of the East.....	\$71,689.39	\$78,196.34	\$149,885.73
Department of the Gulf.....	102,948.67	87,163.26	140,111.93
Department of the Lakes.....	34,648.00	15,334.48	49,982.48
Department of the Missouri.....	62,601.07	38,414.04	101,015.11
Department of Dakota.....	34,964.24	32,300.45	67,264.69
Department of the Colorado.....	29,241.08	28,186.81	57,427.89
Department of California.....	19,240.00	15,106.77	34,346.77
Department of the Columbia.....	21,516.71	11,725.31	33,242.02
Jeffersonville Depot.....		385.88	385.88
New York Depot.....		4,469.60	4,469.60
Philadelphia Depot.....		3,172.83	3,172.83
St. Louis Depot.....		397.80	397.80
Willetts Point.....	150.00	3,302.61	3,452.61
Hot Springs Army and Navy General Hospital.....		2.25	2.25
Total.....	376,999.16	268,158.43	645,157.59

The following list shows the different buildings which have been authorized to be constructed at the various posts, the expenditures therefor being included in the foregoing statement under the head of "Construction:"

Post.	Designation.	Material.	Amount authorized.
<i>Department of the East.</i>			
Fort Adams.....	Privy for camp.....	Wood.....	\$175.00
Camp Alger, Va.....	Temporary storehouses, corrals, etc., at Dunn Loring station.....	do.....	3,500.00
	Post-office building.....	do.....	375.00
Camp Black, N. Y.....	Office building.....	do.....	250.00
Fort Caswell, N. C.....	Temporary storehouses.....	do.....	225.00
	Temporary stables.....	do.....	118.18
Fort Delaware, Del.....	Temporary storehouse.....	do.....	150.00
Fort Ethan Allen.....	Band stand.....	do.....	550.00
	3 double stable-guard buildings.....	Brick.....	5,194.00
	Corral fences.....	Wood.....	216.25
Great Gull Island, N. Y.....	Temporary storehouse.....	do.....	125.00
Fort Hancock.....	Extra work on new buildings.....	Brick.....	2,320.33
	Cremator.....	do.....	2,935.00
Long Island Head, Mass.....	Temporary storehouse.....	Wood.....	125.00
Madison Barracks.....	Wagon shed.....	do.....	1,870.71

Post.	Designation.	Material.	Amounts— authorized.
<i>Department of the East— Continued.</i>			
Fort Monroe.....	Water-closet building.....	Brick.....	\$2,494.00
	Bath house for enlisted men.....	do.....	1,982.00
	Buildings for guard at new batteries.....	Wood.....	495.00
	Temporary sheds for horses.....	do.....	1,000.00
Fort Mott.....	Wagon shed.....	do.....	114.57
	Cook sheds, etc.....	do.....	148.00
Fort Myer.....	Cremator.....	Brick.....	1,691.00
Plattsburg Barracks.....	Band stand.....	Wood.....	575.00
Plum Island, N. Y.....	Office building.....	do.....	125.00
Fort Porter.....	2 additions to barracks.....	Brick.....	19,000.00
	1 band barracks.....	do.....	4,787.00
	Quartermaster's stable.....	do.....	4,283.00
	Coal shed.....	Wood.....	2,788.00
	Wagon shed.....	do.....	1,570.00
	Oil house.....	do.....	257.00
Fort Preble.....	Water-closet building at camp.....	do.....	80.79
Sheridan Point, Va.....	14 water-closets.....	do.....	900.00
	2 privies.....	do.....	60.00
	Temporary storehouse.....	do.....	208.15
	Material for temporary hospital.....	do.....	60.00
Fort Trumbull.....	Observation and shelter houses.....	do.....	100.00
Fort Wadsworth.....	6-stall addition to wagon shed.....	do.....	101.65
Washington Barracks.....	1 double set noncommissioned staff officers' quarters.....	Brick.....	8,260.00
Fort Washington.....	Blacksmith shop.....	Wood.....	50.28
	1 single set noncommissioned staff officers' quarters.....	do.....	1,089.00
	Water-closet building.....	do.....	100.62
Winthrop, Mass.....	Temporary storehouse.....	do.....	386.00
Total.....			71,689.29
<i>Department of the Gulf.</i>			
Fort Bliss.....	Oil house.....	Wood.....	124.75
Chickamauga Park.....	Temporary storehouses.....	do.....	11,028.48
	Shops and forges.....	do.....	900.00
Fort Clinch.....	Temporary stable.....	do.....	150.00
Key West Barracks.....	Fuel shed.....	do.....	117.49
	Temporary buildings for field hospitals.....	do.....	4,867.50
Fort McIntosh.....	Ordnance storehouse.....	Brick.....	274.00
	Oil storehouse.....	do.....	254.00
Fort McPherson.....	Ordnance storehouse.....	do.....	1,250.00
	Fire-apparatus building.....	do.....	1,000.00
	Temporary shelter for troops.....	Wood.....	5,173.18
Mobile, Ala.....	Temporary storehouse.....	do.....	600.00
Fort Morgan, Ala.....	Latrine.....	do.....	44.80
	Temporary storehouse.....	do.....	325.00
	Base-line station and plotting house.....	do.....	290.72
	2 double sets officers' quarters.....	do.....	10,000.00
	1 double set noncommissioned staff officers' quarters.....	do.....	2,584.00
	1 barrack.....	do.....	6,000.00
	Administration building.....	do.....	2,519.00
	Guardhouse.....	do.....	1,000.00
	Quartermaster's and subsistence storehouse.....	do.....	2,023.00
	Stable and wagon shed.....	do.....	2,500.00
	Shop building.....	do.....	1,000.00
Fort Ringgold.....	Gun shed.....	Brick.....	188.22
Tampa, Fla.....	Fencing corral.....	do.....	600.00
	Temporary storehouse.....	Wood.....	13,879.50
Tybee Island, Ga.....	2 double sets officers' quarters.....	do.....	12,300.00
	1 double set noncommissioned staff officers' quarters.....	do.....	2,461.00
	Barrack.....	do.....	8,381.00
	Administration building.....	do.....	2,448.00
	Guardhouse.....	do.....	1,835.00
	Quartermaster's and subsistence storehouse.....	do.....	2,583.00
	Stable and wagon shed.....	do.....	2,200.00
	Shop building.....	do.....	1,300.00
	Temporary storeroom, etc.....	do.....	157.55
Total.....			102,948.67
<i>Department of the Lakes.</i>			
Fort Brady.....	Ordnance storehouse.....	Brick.....	1,258.00
	2 double sets officers' quarters.....	do.....	9,950.00
	1 double set noncommissioned staff officers' quarters.....	do.....	2,840.00
Fort Wayne.....	2 double sets officers' quarters.....	do.....	20,000.00
Total.....			34,048.00

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Post.	Designation.	Material.	Amount authorized.
<i>Department of the Missouri.</i>			
Fort Crook	2 double sets officers' quarters.....	Brick ..	\$12, 114. 80
	Band barrack	do ..	5, 781. 00
	Roof on band stand	Wood ..	102. 56
Jefferson Barracks	Guardhouse.....	Brick ..	10, 469. 00
Fort Leavenworth.....	3 double sets officers' quarters.....	do ..	16, 615. 00
Fort Logan H. Roots	Shelter for hose carts, etc	Wood ..	175. 05
	Scale house.....	do ..	476. 34
	1 double set officers' quarters.....	Brick ..	7, 829. 00
Fort Reno	Saddlers' workshop	Wood ..	248. 82
Fort Sill	6 frame additions to barracks	do ..	8, 465. 00
	Corral and room for teamsters at 14-mile Beaver Creek.....	do ..	299. 55
	Lumber to comple riding school.....		24. 95
Total			62, 601. 07
<i>Department of Dakota.</i>			
Fort Harrison.....	Addition to quartermaster's stable, No. 20.....	Brick ..	3, 165. 00
Fort Yellowstone.....	Barrack	Wood ..	11, 758. 00
	2 double sets officers' quarters	do ..	11, 838. 00
	1 cavalry stable	do ..	3, 725. 00
	2 single sets noncommissioned staff officers' quarters.....	do ..	3, 336. 00
	Additions to and alterations in quartermaster's storehouse, No. 1.....	do ..	1, 040. 00
	2 paddocks for cavalry stables	do ..	112. 34
Total			34, 964. 24
<i>Department of the Colorado.</i>			
Fort Apache.....	Chapel (in addition to \$705.80 from funds of previous fiscal year).....	Wood ..	294. 20
Fort Grant	Completion of 1 set of noncommissioned staff officers' quarters (work begun by troops).....	Adobe ..	171. 15
	Addition to magazine	do ..	142. 58
Fort Huachuca	Addition to commanding officer's quarters.....	do ..	326. 04
	Post quartermaster-sergeant's quarters.....	do ..	800. 00
	Rebuilding cavalry stable, No. 23.....	do ..	1, 315. 00
Fort Logan	Ice house.....	Brick ..	665. 00
	Subsistence storehouse.....	do ..	7, 483. 00
	1 set field officers' quarters.....	do ..	5, 975. 00
	1 double set officers' quarters.....	do ..	11, 583. 00
Fort Washakie	Office addition to barracks, No. 7	Wood ..	230. 00
Fort Wingate	Magazine	Adobe ..	266. 51
Total			29, 241. 08
<i>Department of California.</i>			
Ballast Point, California	Temporary shelter for troops		1, 740. 00
Presidio of San Francisco	Quartermaster's storehouse.....	Brick ..	8, 600. 00
	Subsistence storehouse	do ..	8, 900. 00
Total			19, 240. 00
<i>Department of the Columbia.</i>			
Dyea and Skagway, Alaska	2 portable houses.....	Wood ..	609. 50
	Shelter for stores, etc	do ..	1, 000. 00
Seattle, Wash.....	Part cost of buildings enumerated under head of "Military posts,"		18, 830. 00
Vancouver Barracks.....	1 addition each to barracks Nos. 40 and 42	Wood ..	877. 21
Total			21, 516. 71
<i>Depots and independent posts.</i>			
Willets Point.....	Rebuilding oil house	Brick ..	150. 00

Authorizations have also been made from the appropriation for regular supplies for construction of buildings, etc., as follows:

Post.	Designation.	Material.	Amount authorized.
Fort Columbus, N. Y	Bakehouse with two ovens.....	Brick...	\$3, 775. 00
Fort Keogh, Mont.....	Coal shed.....	Wood ..	544. 00
Fort Leavenworth, Kans.....	Garbage cremator.....	Brick...	1, 464. 00
New post near Spokane, Wash.....	Bakehouse with two ovens.....	do ..	2, 158. 00
Fort Point, Tex.....	Bakery.....	Wood ..	1, 240. 00
Tybee Island, Ga.....	do.....	do ..	1, 325. 00
Plum Island, N. Y	do.....	do ..	1, 050. 00
Total .....	.....	.....	12, 656. 03

MILITARY POSTS.

In the act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1898, Congress provided "for the construction of buildings at, and the enlargement of, such military posts as in the judgment of the Secretary of War may be necessary, \$420,000, of which not less than \$50,000 shall be expended at the military post at Spokane, Wash. And the Secretary of War may, in his discretion, use not to exceed \$20,000 of said sum to purchase the former post trader's buildings at Fort Assinniboine, in Montana."

Twenty thousand dollars has accordingly been expended for the purchase of buildings at Fort Assinniboine, as above authorized, leaving \$400,000 available for construction.

This sum has been apportioned as follows, including, under the head of "new post near Spokane," the \$50,000 specifically appropriated for that post:

Post.	Character of work.	Allotment.
Fort Ethan Allen.....	1 double barrack..... \$30, 500. 00 2 double sets officers' quarters..... 18, 300. 00 2 cavalry stables..... 20, 988. 00 Extra work on buildings..... 135. 00	\$69, 933. 00
Fort Point, Tex.....	2 double sets officers' quarters..... \$13, 734. 00 1 double set noncommissioned staff officers' quarters..... 3, 072. 00 Barrack..... 7, 337. 00 Administration building..... 2, 963. 00 Guardhouse..... 2, 043. 00 Quartermaster's and subsistence storehouse..... 2, 850. 00 Stable and wagon shed..... 2, 490. 00 Shop building..... 929. 00	35, 410. 00
Fort Hamilton.....	Additional work on new stable.....	125. 00
Fort Hancock.....	Hospital steward's quarters..... \$3, 775. 00 Extra work on buildings..... 48. 00	3, 823. 00
Fort Harrison.....	Commanding officer's quarters..... \$11, 300. 00 1 double set noncommissioned staff officers' quarters..... 3, 881. 00 1 band barrack..... 5, 581. 00 4 sets bachelor officers' quarters..... 9, 238. 00	30, 000. 00
Jefferson Barracks.....	Commanding officer's quarters..... \$9, 690. 00 5 double sets officers' quarters..... 24, 945. 00 3 double barracks..... 57, 489. 89 Extra work on buildings, printing, advertising, etc..... 403. 45	92, 523. 34
Fort Myer.....	Extra work on new buildings.....	95. 00
Plattsburg Barracks.....	Extra work on new buildings.....	94. 00
Plum Island, N. Y	2 double sets officers' quarters..... 13, 297. 00 1 double set noncommissioned staff officers' quarters..... 8, 438. 00	

Post.	Character of work.	Allotment.
Plum Island, N. Y.....	Barrack \$13,639.00 Administration building 3,354.00 Guardhouse 2,135.00 Quartermaster's and subsistence storehouse.. 3,894.00 Stable and wagon shed 2,240.00 Shop building 1,226.00 Printing and advertising 115.96	
New post near Seattle, Wash.	1 double barrack 24,400.00 1 double set captains' quarters 10,700.00 2 double sets lieutenants' quarters 16,400.00 2 double sets noncommissioned staff officers' quarters 5,980.00 1 quartermaster's and subsistence storehouse. 7,450.00 Total 68,930.00 Charged to barracks and quarters appropriation..... 18,930.00	\$43,338.96
New post near Spokane, Wash.	Administration building 8,931.00 Quartermaster's stable 7,000.00 Quartermaster's and subsistence storehouse.. 9,580.00 Guardhouse 6,215.00 Hospital steward's quarters 2,228.00 Coal shed 3,044.00 Magazine 450.00 Shop building 2,906.00 Hospital 15,148.00 Extra work on buildings 40.00	50,000.00
Fort Wayne	Extra work on new buildings.....	55,532.00
Willets Point.....	Three-company mess hall and kitchens..... 17,000.00 Extra work and advertising..... 98.40	100.00
Balance June 30, 1898		17,098.40
Total		1,921.10
		400,000.00

The character and cost of the buildings authorized during the year at the different military posts and chargeable to the amount indicated in the preceding table are as hereafter stated.

The expense of plumbing, heating, and gas piping in the buildings, unless otherwise stated, is chargeable to other appropriations of the Quartermaster's Department.

FORT ETHAN ALLEN, VT.

There has been built at this post—

One double barrack (brick), No. 18.....	\$30,500.00
Plumbing in same	2,770.00
Heating in same	3,227.00
Gas piping in same.....	110.00
Total	36,607.00
Three double sets officers' quarters (brick), Nos. 6, 7, and 8	18,900.00
Plumbing in same	1,753.00
Heating in same	2,019.00
Gas piping in same.....	96.00
Total	22,168.00
Two cavalry stables (brick), Nos. 27 and 28.....	20,998.00
Plumbing in same	1,200.00
Total.....	22,198.00

FORT HANCOCK, N. J.

At this post the following building is being constructed:

One set hospital stewards' quarters (brick), No. 20.....	\$3,775.00
Plumbing in same	147.00
Gas piping in same.....	11.00
Total.....	<u>3,933.00</u>

FORT HARRISON, MONT.

This post is being enlarged by the erection of—

One set commanding officers' quarters (brick), No. 35.....	\$11,300.00
Plumbing in same.....	829.00
Heating in same	1,262.85
Gas piping in same	138.00
Total	<u>13,529.85</u>
One set non-commissioned staff officers' quarters (brick), No. 11	3,881.00
Plumbing in same.....	630.00
Gas piping in same	84.00
Total.....	<u>4,595.00</u>
One band barrack (brick), No. 37.....	5,581.00
Plumbing in same.....	768.00
Heating in same	844.35
Gas piping in same	65.00
Total	<u>7,258.35</u>

NEW POST NEAR SEATTLE, WASH.

The following buildings are being constructed at the above-named post, under authority granted in the sundry civil act approved March 2, 1895:

One double barrack (wood)	\$28,400.00
Plumbing in same	1,600.00
Heating in same	4,400.00
Gas piping in same	60.00
Total.....	<u>34,460.00</u>
One double set captains' quarters (wood).....	10,700.00
Plumbing in same	1,025.00
Heating in same	1,500.00
Gas piping in same.....	80.00
Total	<u>13,305.00</u>
One double set lieutenants' quarters (wood).....	16,400.00
Plumbing in same	1,550.00
Heating in same	2,300.00
Gas piping in same.....	60.00
Total	<u>20,310.00</u>
Two double sets noncommissioned staff officers' quarters (wood)	5,980.00
Plumbing in same	460.00
Gas piping in same.....	35.00
Total.....	<u>6,475.00</u>
One quartermaster's and subsistence storehouse (wood).....	<u>7,450.00</u>

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One bachelor officers' quarters (brick).....	\$9,238.00
Plumbing in same.....	1,678.00
Heating in same.....	1,029.35
Gas piping in same.....	147.00
Total.....	12,092.35

JEFFERSON BARRACKS, MO.

The following additional buildings have been contracted for and completed at this post during the year:

One set commanding officers' quarters (brick) No. 7.....	\$9,690.00
Plumbing in same.....	463.00
Heating in same.....	735.00
Gas piping in same.....	45.00
Total.....	10,933.00
Five double sets officers' quarters (brick) Nos. 12 to 16.....	24,945.00
Plumbing in same.....	2,765.00
Heating in same.....	3,090.00
Gas piping in same.....	187.00
Total.....	30,987.00
Three double barracks (brick) Nos. 27, 28, and 29.....	57,489.89
Plumbing in same.....	4,476.00
Heating in same.....	7,788.00
Gas piping in same.....	377.00
Total.....	70,130.89

NEW POST AT FORT POINT, TEX.

During the year the following buildings have been contracted for at this post, to accommodate one battery of artillery:

Two double sets officers' quarters (wood).....	\$13,734.00
One double set noncommissioned staff officers' quarters (wood).....	3,072.00
One barrack (wood).....	7,337.00
One administration building (wood).....	2,963.00
One guardhouse (wood).....	2,035.00
One quartermaster's and subsistence storehouse (wood).....	2,850.00
One stable and wagon shed (wood).....	2,490.00
One shop building (wood).....	929.00
Total.....	35,410.00

NEW POST AT PLUM ISLAND, N. Y.

This post is being constructed for a battery of artillery by the erection of—

Two double sets officers' quarters (wood).....	\$13,297.00
One double set noncommissioned staff officers' quarters (wood).....	3,438.00
One barrack (wood).....	13,639.00
One administration building (wood).....	3,354.00
One guardhouse (wood).....	2,135.00
One quartermaster's and subsistence storehouse (wood).....	3,894.00
One stable and wagon shed (wood).....	2,240.00
One shop building (wood).....	1,226.00
Total.....	43,223.00

MILITARY POST AT SPOKANE, WASH.

This post is being completed for two companies by the erection, under contract, of—

One administration building, No. 21 (brick).....	\$8,931.00
Plumbing in same.....	748.00
Heating in same.....	1,165.00
Gas piping in same.....	99.00
Total.....	10,943.00
One quartermaster's stable, No. 39 (brick).....	7,000.00
Plumbing in same.....	162.80
Total.....	7,162.80
One quartermaster's and subsistence storehouse, No. 42 (brick).....	9,580.00
One guardhouse, No. 23 (brick).....	6,205.00
Plumbing in same.....	615.00
Heating in same.....	809.00
Gas piping in same.....	53.00
Total.....	7,682.00
One hospital, No. 32 (brick).....	15,148.00
Plumbing in same.....	793.00
Heating in same.....	2,208.00
Gas piping in same.....	137.00
Total.....	18,286.00
One hospital steward's quarters, No. 30 (brick).....	2,228.00
Plumbing in same.....	157.30
Gas piping in same.....	16.50
Total.....	2,401.80
One coal shed, No. 40 (wood).....	3,044.00
One magazine, No. 44 (brick).....	450.00
One shop building, No. 43 (brick).....	2,906.00

WILLETS POINT, N. Y.

There is being built at this post—

One three-company mess hall and kitchen, No. 22, (brick).....	\$17,000.00
Plumbing in same.....	675.00
Heating in same.....	1,049.36
Total.....	18,724.36

PRESIDIO OF SAN FRANCISCO, CAL.

The act of Congress approved June 7, 1897, appropriated \$5,000 for "Road to national cemetery," etc.

Contract was entered into December 18, 1897, with Messrs. LeOclair & Countts, of San Francisco, Cal., for construction of about 936 feet stone wall, measured horizontally along southern boundary of the military reservation, Presidio of San Francisco, Cal., at \$5.12 per linear foot, and for each cubic foot of additional foundation 30 cents, and for each cubic foot of additional stonework 40 cents. The work was completed March 21, 1898, to the satisfaction of the Government, and final payment was made March 31, 1898.

There was built under this contract—

814 linear feet of wall, at \$5.12 per linear foot.....	\$4,321.28
And 1,978½ cubic feet of extra concrete foundation, at 30 cents per cubic foot.....	593.55

The balance of this appropriation was expended as follows:

For advertising in newspapers.....	\$47.65
For service of an inspector.....	37.50
	85.15
Balance on hand, deposited to credit United States Treasurer with assistant treasurer, San Francisco, Cal.....	.02
Total.....	5,000.00

Expenditures authorized for water supply, sewerage, plumbing, and drainage; also for roads, walks, grading, bridges, wharves, etc., chargeable to the appropriation for army transportation for 1897-98.

Post.	Water supply, sewerage, plumbing, and drainage.	Roads, walks, grading, bridges, etc.	Wharves.	Miscellaneous.
Fort Adams.....	\$544.79	\$546.70	\$309.25	\$48.00
Alcatraz Island.....	444.74		10.00	
Camp Alger, Va.....	2,357.04	1,000.00		9.00
Angel Island.....	622.58	14.20	1,488.44	
Fort Apache.....	390.52			
Arlington, Va.....	500.00	2,279.75		52.22
Fort Assiniboine.....	3,281.86			
Fort Baker, Cal.....	4,522.08			
Fort Barrancas.....	787.61	902.30		129.50
Fort Bayard.....	1,080.67	120.00		
Benicia Barracks.....	336.94	160.00		4.00
Fort Bliss.....	357.54			
Boise Barracks.....	77.58	39.00		
Fort Brady.....	1,491.67	222.22		
Fort Brown.....	8,417.21	187.50		1,766.27
Fort Canby.....	224.97		226.50	
Fort Caswell.....	358.00			
Chicago, Ill.....	114.00			14.90
Chickamunga Park.....	12,040.00			
Fort Clark.....	1,019.95			
Columbus Barracks.....	1,990.57	30.25		50.00
Fort Columbus.....	6.75			
Fort Crook.....	2,890.05	1,708.98		
Fort Custer.....	181.28			413.22
Fort D. A. Russell.....	643.77			
Fort Delaware.....	40.80			90.50
Fort Douglas.....	5,238.21	1,670.40		
Fort Du Chesne.....	84.75			195.00
Dutch Island, R. I.....	275.00			
Camp Eagle Pass.....	174.94			
Fort Ethan Allen.....	6,662.43	7,526.10		447.50
Fort Point, Tex.....	70.00	500.00		
Governor's Island.....	905.21	12.00	3,402.00	596.00
Fort Grant.....	878.54	20.65		4.55
Fort Hamilton.....	1,675.97	2,652.10	200.00	324.75
Fort Hancock, N. J.....	163.88	260.00		56.50
Fort Harrison.....	7,112.22	4,332.45		75.00
Hot Springs Army and Navy Hospital.....		300.00		
Fort Huachuca.....	1,131.64			10.00
Fort Independence, Mass.....	206.40			
Jackson Barracks.....	341.90	2,075.00		70.50
Jefferson Barracks.....	17,581.32	1,200.33		2,835.75
Jeffersonville Depot.....	140.00			
Fort Keogh.....	3,148.84	18.00		
Key West Barracks.....	18,806.67			6.00
Fort Leavenworth.....	3,939.83	378.40		
Long Island Head.....			165.00	
Fort Logan H. Koots.....	1,279.05	492.45		213.60
Fort Logan.....	3,658.44			
Madison Barracks.....	688.43	243.90	53.18	
Fort Mason.....	260.43		20.00	80.00
Fort McHenry.....	333.16	241.35		12.90
Fort McIntosh.....	152.55			
Fort McPherson.....	796.52			72.00
Fort Meade.....	656.43	705.85		275.54
Fort Missoula.....	119.02	18.90		

Expenditures authorized for water supply, sewerage, plumbing, and drainage; also for roads, walks, grading, bridges, wharves, etc.—Continued.

Post.	Water supply, sewerage, plumbing, and drainage.	Roads, walks, grading, bridges, ect.	Wharves.	Miscellaneous.
Mobile.....	\$700.00			
Fort Monroe.....	8,255.24	\$1,117.00	\$956.26	\$166.25
Fort Morgan.....	325.90	500.00		
Fort Mott, N. J.....	226.65	125.00	235.00	21.00
Fort Myer.....	12,740.26	1,711.47		626.88
New York Depot.....	695.00			300.00
Fort Niagara.....	1,211.46	146.00	6.05	8.00
Fort Niobrara.....	727.23	970.64		127.00
Fort Omaha.....	205.00			
Omaha Depot.....	51.85	44.00		
Philadelphia Depot.....	189.35	2,839.00		311.85
Plattaburg Barracks.....	360.85	1,877.92		13.43
Plum Island, N. Y.....		200.00		
Fort Porter.....	5,270.71	248.00		826.08
Portland Head.....	300.00			
Fort Preble.....	237.85		10.80	
Presidio of San Francisco.....	4,658.37	5,515.86		238.00
Fort Pulaaki.....			103.00	
Fort Reno.....	1,088.92	299.00		
Fort Riley.....	2,355.32	1,564.17		703.78
Fort Ringgold.....	3,186.48			
Fort Robinson.....	6,353.39	145.00		
St. Francis Barracks.....	342.40	352.38		
Fort St. Philip.....	8.00		135.00	
St. Louis Depot.....	209.09			
St. Paul, Minn.....	12.00			24.00
St. Petersburg, Fla. (for transports).....	3,000.00			
Fort Sam Houston.....	1,726.38	464.40		
San Antonio, Tex.....	61.42	114.35		
San Carlos, Ariz.....	39.36			
San Diego Barracks.....	40.00			
San Francisco, Cal.....	165.12			
Sandy Hook, N. J.....		3,280.00		
Fort Schnyler, N. Y.....	485.35		1,254.37	
Seattle, new post near.....	4,635.00	7,500.00	600.00	148.10
Fort Sheridan.....	645.09	688.31		
Sheridan Point, Va.....	750.00			
Fort Sherman.....	253.95	10.00		59.00
Fort Sill.....	5,786.64	56.50		
Fort Slocum.....	141.70	96.00	2,062.50	
Fort Snelling.....	726.62			
Spokane, new post near.....	18,136.48	9,712.52		125.00
Fort Spokane.....	150.72			
Sullivan's Island.....	168.68			16.00
Tampa, Fla.....	250.00			
Fort Thomas.....	837.68			
Fort Trumbull.....	393.35	18.00	60.75	13.63
Tybee Island, Ga.....	65.00	750.00		
Vancouver Barracks.....	2,179.80	114.50		
Vancouver Depot.....	772.98	41.00		
Fort Wadsworth.....	1,154.03	1,180.00	33.50	80.00
Fort Walla Walla.....	454.40	170.00		
Fort Warren.....	343.26		885.00	
Fort Washakie.....		23.39		
Washington Barracks.....	779.07			262.60
Washington Depot.....	195.00			
Fort Washington.....	3,263.70	100.00	336.32	20.80
Fort Wayne.....	2,011.42	1,014.21		1,555.00
Whipple Barracks.....	157.05			
Willetts Point.....	2,584.96	11.04	3,010.00	7.50
Fort Wingate.....	248.63	4.00		
Winthrop, Mass.....	150.00			
Fort Yates.....	258.23	10.20		20.00
Fort Yellowstone.....	3,556.00	374.55		
Filters for troops in field.....	50,850.00			
Distilling machines etc., for Philippine expedition.....	19,500.00			
Miscellaneous.....	336.48	150.00	10.00	3.00
Total.....	298,175.60	73,417.28	15,572.92	13,481.10
Grand total.....				400,646.90

Expenditures authorized for lighting, heating, and cooking apparatus, chargeable to the appropriation for regular supplies, 1897-98.

Post.	Amount.	Post.	Amount.
Fort Adams	\$362.90	Fort Niagara	\$197.70
Fort Assiniboine	182.22	Fort Niobrara	222.40
Atlanta	20.00	Omaha Depot	25.00
Benicia Arsenal, Cal	180.00	Fort Ontario, N. Y	250.00
Benicia Barracks	84.50	Philadelphia Depot	93.50
Berne legation, Switzerland	90.00	Plattsburg Barracks	523.20
Fort Bliss	118.30	Fort Porter	5,882.00
Fort Brady	1,615.63	Plum Island	2,800.00
Chickamunga Park	375.00	Presidio of San Francisco	5.16
Columbus Barracks	536.86	Fort Riley	1,824.10
Fort Crook	2,887.64	Fort Robinson	103.10
Fort D. A. Russell	30.00	St. Francis Barracks	14.80
Fort Douglas	111.65	St. Paul, Minn	111.05
Fort Ethan Allen	5,518.10	Fort Sam Houston	264.39
Governors Island	175.60	San Antonio, Tex	86.96
Fort Hamilton	2,547.00	San Francisco, Cal	6,020.00
Fort Hancock, N. J	2,104.00	Fort Schuyler	5.25
Fort Harrison	2,708.14	Seattle, new post near	8,435.00
Hot Springs Army and Navy Hospital	33.25	Fort Sheridan	505.09
Fort Independence, Mass	47.00	Fort Sill	216.00
Jefferson Barracks	13,467.12	Fort Slocum	248.41
Jeffersonville Depot	1,849.00	Fort Snelling	244.83
Key West Barracks	612.49	Spokane, new post near	4,657.50
Fort Leavenworth	2,661.83	Fort Thomas	1,735.03
Fort Logan	6,290.50	Fort Trumbull	1.80
Fort Logan H. Roots	250.25	Tybee Island, Ga	1,000.00
Madison Barracks	3,903.04	Fort Wadsworth	129.10
Fort Mason	80.00	Washington Barracks	168.15
Fort McHenry	1.50	Fort Washington	250.00
Fort McPherson	52.10	Washington Depot	15.00
Fort Meade	245.81	Fort Wayne	3,073.75
Fort Monroe	6,981.10	Willels Point	2,076.35
Fort Morgan	139.40		
Fort Myer	292.60		
New York Depot	3,768.00	Total	103,956.18

TARGET FUNDS.

"For shelter, shooting galleries, ranges for small-arms target practice, repairs, and expenses incident thereto," Congress, in the act making appropriations for the support of the Army, approved March 2, 1897, provided \$10,000, which has been apportioned as follows:

Department.	Character of work.	Amount.
Department of the East	Repairs, etc	\$3,306.94
Department of the Missouri	do	8,585.15
Department of the Platte	do	307.97
Department of Dakota	do	844.74
Department of Texas	do	1,052.32
Department of the Colorado	do	1,115.11
Department of California	do	130.04
Department of the Columbia	do	157.73
Total		10,000.00

HOSPITALS.

In the act making appropriations for the support of the Army for the fiscal year ending June 30, 1898, Congress appropriated \$75,000 for construction and repairs of hospitals at military posts already established and occupied, including the extra-duty pay of enlisted men employed on the same and including also all expenditures for construction and repairs required at the Army and Navy Hospital at Hot

Springs, Ark., except quarters for the officers. This fund has been disbursed by officers of the Quartermaster's Department, on estimates approved by the Surgeon-General of the Army, as follows:

Post.	Amount.	Post.	Amount.
<i>Department of the East.</i>		<i>Department of Dakota.</i>	
Fort Adams	\$370.43	Fort Assiniboine	\$33.68
Fort Caswell	33.06	Fort Custer	42.12
Fort Columbus	784.71	Fort Harrison	126.11
Fort Delaware	918.50	Fort Keogh	920.70
Fort Ethan Allen	249.92	Fort Meade	148.85
Fort Hamilton	17,861.86	Fort Missoula	284.25
Fort Hancock	18,825.90	Fort Snelling	427.42
Madison Barracks	743.57	Fort Yellowstone	113.58
Fort McHenry	122.20		
Fort Monroe	8.28	Total	2,096.71
Fort Myer	216.49		
Fort Niagara	318.45	<i>Department of the Colorado.</i>	
Plattburg Barracks	8.00		
Fort Preble	238.49	Fort Apache	551.95
Fort Porter	198.26	Fort Bayard	216.75
Fort Schuyler	358.01	Fort Douglas	396.25
Fort Slocum	8.30	Fort Du Chesse	222.00
Fort Trumbull	182.06	Fort Grant	329.08
Fort Wadsworth	468.05	Fort Huachuca	564.74
Fort Warren	286.73	San Carlos, Ariz.	177.30
Washington Barracks	1,163.63	Fort Washakie	92.80
Fort Washington	1,208.34	Whipple Barracks	9.08
Total	44,468.24	Fort Wingate	75.00
		Total	2,574.92
<i>Department of the Gulf.</i>		<i>Department of California.</i>	
Fort Barrancas	165.05		
Fort Brown	1,629.85	Angel Island	304.40
Fort Clark	367.08	Benicia Barracks	145.10
Camp Eagle Pass	257.39	Presidio of San Francisco	134.50
Jackson Barracks	114.00		
Key West Barracks	706.68	Total	484.00
Fort McIntosh	373.00		
Fort McPherson	223.75	<i>Department of the Columbia.</i>	
St. Francis Barracks	610.77		
Fort Sam Houston	270.53	Boise Barracks	70.00
Sullivan's Island	245.91	Fort Sherman	24.06
Total	4,964.01	Vancouver Barracks	223.51
		Fort Walla Walla	447.87
<i>Department of the Lakes.</i>		Total	765.44
Fort Brady	111.00		
Columbus Barracks	573.54	<i>Independent posts.</i>	
Fort Sheridan	509.60		
Fort Thomas	422.91	Hot Springs Army and Navy Hospital	600.00
Fort Wayne	12,428.26	Chickamauga Park	165.00
Total	14,045.31	Total	765.00
		RECAPITULATION.	
<i>Department of the Missouri.</i>		Department of the East	44,468.24
Fort Crook	430.11	Department of the Gulf	4,964.01
Jefferson Barracks	767.50	Department of the Lakes	14,045.31
Fort Leavenworth	455.51	Department of the Missouri	4,653.21
Fort Logan H. Roots	22.95	Department of Dakota	2,096.71
Fort Niobrara	564.59	Department of the Colorado	2,574.92
Fort Reno	438.27	Department of California	484.00
Fort Riley	904.00	Department of the Columbia	765.44
Fort Robinson	177.00	Independent posts	765.00
Fort Sill	893.28	Balance June 30, 1898	183.16
Total	4,653.21	Grand total	75,000.00

The above statement includes the construction, plumbing, and gas piping of a post hospital at Fort Hamilton, at a cost of \$16,522; the same at Fort Hancock, N. J., at a cost of \$18,810.50, and an addition to hospital at Fort Wayne, with alterations, plumbing, and gas piping, at a cost of \$12,357. The work at Fort Hamilton is completed, and at the other two posts is under contract.

HOSPITAL STEWARDS' QUARTERS.

In the army appropriation act for the fiscal year ending June 30, 1897, Congress also appropriated \$7,000 for construction of quarters for hospital stewards at military posts already established and occupied, including the extra-duty pay of enlisted men employed on the same. This sum has been apportioned to the posts named below:

Post.	Amount.	Post.	Amount.
Fort Adams	\$152.92	Fort Myer	\$16.50
Angel Island	12.25	Fort Niagara	127.52
Fort Apache	31.79	Fort Porter	6.55
Fort Bliss	2,750.00	Fort Preble	60.05
Boise Barracks	15.87	Fort Reno	18.83
Fort Canby	23.00	Fort Riley	60.76
Fort Columbus	18.00	Fort Ringgold	52.05
Fort Custer	9.65	Fort Robinson	52.47
Fort Douglas	89.65	St. Francis Barracks	54.25
Fort DuChesne	4.00	Fort Sam Houston	36.84
Fort Ethan Allen	73.90	San Carlos, Ariz	9.00
Fort Grant	3.23	Fort Sherman	17.50
Fort Hamilton	720.35	Fort Sill	45.95
Jackson Barracks	62.80	Fort Trumbull	45.60
Key West Barracks	30.00	Fort Yates	66.32
Fort Leavenworth	2,060.35	Fort Yellowstone	8.24
Madison Barracks	54.08	Balance June 30, 1898	42.88
Fort McHenry	20.80		
Fort McIntosh	79.40	Total	7,000.00
Fort Meade	64.15		

The construction of two sets of stewards' quarters is included above—one at Fort Bliss, Tex., costing \$2,750, and one at Fort Leavenworth, Kans., costing \$1,993, both completed.

Losses by fire.

Post.	Building.	Amount of damage.
Fort Spokane, Wash.....	1 double set officers' quarters (building No. 2).	Destroyed.
Fort Crook, Nebr.....	Bachelor officers' quarters (No. 13).....	Estimated cost of repairs, \$2,500.
Fort Custer, Mont.....	Chapel (No. 15)	Destroyed.
Fort Niobrara, Nebr.....	Blacksmith shop (No. 66) (occupied by married enlisted men).	Estimated cost of repairs, \$207.60.
Fort Robinson, Nebr.....	Old log barracks (No. 90)	Destroyed.
	Noncommissioned staff officers' quarters (No. 39).	Wrecked.
Jefferson Barracks, Mo.....	Noncommissioned staff officers' quarters (No. 23).	Destroyed, except south wing.
Boise Barracks, Idaho.....	Hay shed	Destroyed.

Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc., during the fiscal year, and the amount of rent paid therefor.

DEPARTMENT OF THE EAST.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Boston, Mass	8 rooms.....	Offices and storerooms, quartermaster and subsistence departments.	\$90.00	\$1,080.00
Battery Point, Del.....	Ground.....	Camp for Eighteenth Pennsylvania Infantry.	600.00	280.00
Middletown, Del.....	.....do.....	Camp for First Delaware Infantry.....	428.57	428.57
North Ferrisburg, East Middlebury, Shelburne, Rochester, Waitsfield, Vt.	.....do.....	Camp for Third Cavalry.....	.....	35.00
Baltimore, Md.....	6 rooms.....	Quarters for quartermaster sergeant.....	10.00	30.00
Pennsgrove, N. J.....	Barn.....	Commissary storehouse.....	6.00	7.57
Pompton Lakes, N. J.....	.....do.....	.....do.....	5.00	6.00
Do.....	Ground.....	Camp for Third New Jersey Infantry....	50.00	70.00
Nahant, Mass.....	.....do.....	Camp for Battery A, First Massachusetts Artillery.	Gratis.	Gratis.
Falls Church, Va.....	.....do.....	Camp Alger.....	.....	309.78
Woodburn Manor, Va.....	.....do.....	.....do.....	300.00	500.00
Dunn Loring, Va.....	.....do.....	.....do.....	25.00	41.67
Total.....	.....	.....	.....	2,788.59

DEPARTMENT OF THE GULF.

Chatanooga, Tenn.....	1 room and basement.	Subsistence storehouse.....	\$75.00	\$150.00
.....do.....	.....do.....	.....do.....	70.00	58.33
.....do.....	3 rooms.....	.....do.....	200.00	340.00
.....do.....	1 room.....	.....do.....	75.00	40.00
.....do.....	.....do.....	.....do.....	75.00	125.00
.....do.....	2 rooms and basement.	.....do.....	30.00	30.00
.....do.....	4 rooms and basement.	.....do.....	75.00	115.00
.....do.....	1 room.....	.....do.....	50.00	81.67
.....do.....	10 rooms and basement.	.....do.....	300.00	290.00
.....do.....	1 room.....	.....do.....	300.00	290.00
.....do.....	8 rooms and 2 basements.	.....do.....	50.00	18.33
.....do.....	5 rooms.....	Offices, depot quartermaster and commissary.	25.00	38.33
.....do.....	1 room.....	Office depot quartermaster.....	15.00	30.00
Mobile, Ala.....	Ground.....	Encampment of troops.....	100.00	173.33
.....do.....	.....do.....	Encampment (additional).	100.00	56.67
Tampa, Fla.....	Building.....	Offices, headquarters Fourth Army Corps.	10.00	5.67
Mobile, Ala.....	1 floor.....	Office, quartermaster's department.....	75.00	175.00
.....do.....	Building.....	Storehouse, quartermaster's and commissary stores.	200.00	240.00
.....do.....	.....do.....	.....do.....	60.00	145.00
.....do.....	1 floor.....	Storehouse, commissary stores.....	112.50	302.50
Key West, Fla.....	1 building.....	United States general hospital.....	60.00	66.00
.....do.....	4 buildings.....	.....do.....	75.00	150.00
.....do.....	1 building.....	Office and storeroom, quartermaster's department.	35.00	70.00
Savannah, Ga.....	1 hall.....	General court-martial.....	10.00	140.00
Atlanta, Ga.....	2 rooms.....	Office, pay department.....	25.00	250.00
New Orleans, La.....	Building.....	Offices, quartermaster's and commissary.	83.33	999.96
.....do.....	.....do.....	Storehouse for quartermaster and commissary.	225.00	350.00
San Antonio, Tex.....	18 rooms.....	Quarters for signal sergeants.....	12.00	689.40
.....do.....	1 room.....	Quarters for veterinary surgeon.....	12.00	144.00
Atlanta, Ga.....	4 rooms.....	Quarters for signal sergeants.....	12.00	52.00
.....do.....	1 room.....	.....do.....	12.00	7.50
.....do.....	2 rooms.....	Quarters for Signal Corps.....	12.00	14.80
.....do.....	31 rooms.....	Offices, etc.....	545.83	545.83
.....do.....	14 rooms.....	.....do.....	394.71	394.71
.....do.....	27 rooms.....	.....do.....	150.00	150.00
.....do.....	.....do.....	.....do.....	500.00	500.00
Houston, Tex.....	2 rooms.....	Storerooms.....	30.00	30.00
Santa Maria, Tex.....	Ground.....	Camp for United States troops.....	12.50	150.00
Hebronville, Tex.....	1 room.....	Quarters for quartermaster's agent.....	8.00	96.00
Tampa, Fla.....	Building.....	Storehouse for quartermaster's department	25.00	53.33
.....do.....do.....do.....	25.00	53.33
.....do.....do.....do.....	25.00	53.33

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE GULF—Continued.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Tampa, Fla	Building...	Storehouse for quartermaster's department.	\$35.00	\$55.83
	.....do .....	.....do	25.00	53.33
	.....do .....	.....do	10.00	20.00
	.....do .....	.....do	30.00	26.00
	1 room	Room for quartermaster's department...	4.00	2.00
	Building...	Storehouse for quartermaster's department.	30.00	30.00
	.....do .....	.....do	75.00	75.00
	Rooms	Rooms, paymaster		325.00
	4 rooms	Rooms, General Commanding Army	5.00	140.00
	1 room	Rooms, chief surgeon	5.00	30.00
	2 rooms	Rooms, chief quartermaster	5.00	50.00
	1 room	Rooms, Army Retiring Board	5.00	55.00
Port Tampa City, Fla..	Corral	Corral for quartermaster's department	50.00	90.00
Port Tampa, Fla.....	.....do .....	.....do	50.00	81.67
	Building, 12,000 sq. feet.	Storehouse, quartermaster's department	a .08	1,920.00
	Building .....	.....do	100.00	177.33
Tampa, Fla.....	.....do	Storehouse, commissary department	20.00	38.66
Port Tampa, Fla.....	.....do	Storehouse, quartermaster's department	125.00	250.00
	.....do .....	.....do	125.00	250.00
Tampa, Fla .....	.....do	Cottage, quartermaster's department	b .75	8.25
	.....do	Storehouse for commissary department	50.00	74.99
	.....do .....	.....do	400.00	680.00
	.....do .....	.....do	60.00	96.00
	.....do .....	.....do	60.00	96.00
	.....do .....	.....do	25.00	40.00
	.....do	Storehouse for quartermaster's department.	125.00	200.00
	.....do	Storehouse for commissary department	60.00	96.00
	.....do .....	.....do	75.00	120.00
	Ground	Corral, quartermaster's department	75.00	120.00
	Building	Storehouse, quartermaster's department	250.00	366.66
	.....do	Storehouse, commissary department	80.00	117.34
	.....do	Storehouse, quartermaster's department	225.00	330.00
	Ground	Corral, quartermaster's department	220.00	278.66
	2 rooms	Offices, medical department	15.00	15.00
	Ground	Corral for quartermaster's department	5.00	5.00
	Building	Storehouse, commissary department	65.00	110.50
	.....do .....	.....do	125.00	216.67
	.....do .....	.....do	15.00	31.50
Port Tampa City, Fla..	.....do	Storehouse, ordnance department	50.00	61.66
Tampa, Fla .....	.....do	Offices, quartermaster's department		348.37
	.....do	Offices, commissary department		6.67
Port Tampa City, Fla..	.....do	Storehouse for quartermaster's department.	100.00	216.67
	.....do	Storehouse, commissary department	1,000.00	1,000.00
Tampa, Fla	1 room	For enlisted men (General Miles's headquarters).	2.50	6.43
	Buildings	Storehouse, commissary department	35.00	59.50
	.....do	Storehouse, quartermaster's department	125.00	125.00
	.....do	Office, bureau military information	30.00	40.00
	Stables	Stables for public animals	b .20	14.80
	Building	Storehouse, commissary department	500.00	500.00
	.....do .....	.....do	30.00	15.00
	Stables	Stalls and stables for public animals	b .20	120.00
	.....do	Storehouse, commissary department	50.00	18.33
West Tampa, Fla.....	.....do .....	.....do	10.00	6.67
Tampa, Fla	Rooms	For enlisted men, headquarters General Miles.	b .50	8.00
	Building	Offices, quartermaster's department	18.66	5.55
Port Tampa, Fla.....	.....do .....	.....do		217.00
Jacksonville, Fla.....		Storehouse, quartermaster's department	30.00	49.85
		.....do	30.00	30.00
		Storehouse, commissary department	150.00	115.00
		.....do	50.00	23.33
		.....do	8.00	6.77
		.....do	30.00	30.00
		.....do	30.00	23.33
Total				17,961.84

a Per square foot.

b Per day.

Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE LAKES.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Detroit, Mich.....	Building....	Office and storehouse, constructing quartermaster.	\$25. 00	\$300. 00
Chicago, Ill.....	2 rooms.....	Office for Captain Aleshire.....	30. 00	125. 00
	1 room.....	Storeroom, quartermaster's department...	15. 00	67. 50
	.....do.....	Office and storeroom, quartermaster's department.	50. 00	575. 00
	28 rooms.....	Offices, headquarters department.....	1, 000. 00	12, 000. 00
	6 floors.....	Offices, subsistence department, and storehouses for quartermaster's and subsistence departments.	416. 66	4, 999. 92
	Building....	Stables for animals of the quartermaster's department.	150. 00	1, 800. 00
	1 room.....	Quarters for signal sergeant.....	12. 00	121. 20
	.....do.....	Quarters for hospital steward.....	12. 00	121. 20
	Building....	Warehouse for quartermaster's department.	125. 00	275. 00
Cincinnati, Ohio.....	.....do.....	Offices and warehouse, subsistence department.	225. 00	112. 50
Fort Sheridan, Ill.....	Ground.....	Encampment of troops to and from Chicago, dedication Logan monument.	.....	25. 00
	.....do.....	Encampment of troops to and from Chicago, horse show at Chicago.	.....	10. 00
Fort Wayne, Mich.....	.....do.....	Encampment of troops to and from target range at Island Lake, Mich.	.....	46. 00
Total.....	.....	.....	.....	20, 382. 32

DEPARTMENT OF THE MISSOURI.

Omaha, Nebr.....	39 rooms....	Department headquarters.....	\$666. 66	\$8, 000. 00
Rush Springs, Ind. T.....	Shelter.....	For teamsters and mules.....	25. 00	300. 00
Fort Crook, Nebr.....	Ground.....	Camp for Twenty-second Infantry while on practice march.	.....	12. 50
Omaha, Nebr.....	1 room.....	Quarters for commissary sergeant to April 30, 1898, 10 months.	12. 00	120. 00
	1 room each.	Quarters for four noncommissioned officers on duty at the Trans-Mississippi Exposition (each).	12. 00	96. 00
Kansas City, Mo.....	3 rooms.....	Office and storeroom (vacated June 5, 1898).	60. 00	701. 67
	1 room.....	Lodgings (vacated Oct. 5, 1897).....	10. 00	31. 67
	3 rooms.....	Offices and storeroom, subsistence department.	60. 00	480. 00
	1 room.....	Quarters for commissary-sergeant.....	10. 00	31. 67
Jefferson Barracks, Mo.	Ground.....	Target range at Arcadia, Mo.	.....	150. 00
	.....do.....	Encampment of troops to and from target range.	.....	37. 00
Fort Riley, Kans.....	.....do.....	Practice marches of troops.....	.....	112. 00
Rush Springs, Ind. T.....	1 room.....	Shelter for teamsters.....	25. 00	200. 00
Fort Yellowstone, Wyo., to Fort Robinson, Nebr.	Ground.....	Camp for Troops D and I, Sixth Cavalry, changing station.	.....	5. 00
Total.....	.....	.....	.....	10, 280. 51

DEPARTMENT OF DAKOTA.

St. Paul, Minn.....	1 room.....	Quarters for signal sergeant.....	\$12. 00	\$120. 00
Helena, Mont.....	5 rooms.....	Offices for quartermaster's department...	50. 00	600. 00
	1 room.....	Storeroom for quartermaster's department...	10. 00	120. 00
	.....do.....	Stable for quartermaster's department....	10. 00	120. 00
Wolf Creek, Mont.....	Ground.....	Detachment Twenty-fifth Infantry from Fort Missoula, Mont., in connection with maps of military information.	.....	4. 00
Sun River, Mont.....	.....do.....	.....	.....	4. 00
In the field, en route from Fort Snelling, Minn., to Lake View, Minn., and return.	.....do.....	Practice march Third United States Infantry.	.....	89. 00
In the field.....	.....do.....	Camp for detachment Third Infantry, Fort Snelling surveying party.	.....	8. 50
In the field, near Fort Missoula, Mont.do.....	Camps on practice march, Twenty-fifth United States Infantry.	2. 50
Total.....	1, 068. 00

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE COLORADO.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Albuquerque, N. Mex.	1 room.....	Office for paymaster	\$25. 00	\$109. 17
Cedar Springs, Ariz.	.....do	Quarters for signal sergeant.....	12. 00	144. 00
Coolley's, Ariz.	.....do .....	.....do	12. 00	144. 00
Denver, Colo.	47 rooms.....	Headquarters	684. 66	8,143. 92
	Building.....	Stable, quartermaster's department.....	50. 00	600. 00
	2 rooms.....	Quarters for signal sergeant.....	12. 00	234. 00
Holbrook, Ariz.	1 room.....	Office, quartermaster's agent.....	5. 00	60. 00
		Quarters for signal sergeant.....	12. 00	108. 00
Fort Logan, Colo.	2 rooms.....	.....do	12. 00	222. 00
Mammoth, Ariz.	1 room.....	.....do	12. 00	24. 00
Price, Utah.	.....do .....	.....do	12. 00	108. 00
	Building.....	Quartermaster's storehouse.....	15. 00	180. 00
San Bernardino, Ariz.	1 room.....	Quarters for signal sergeant.....	12. 00	108. 00
Silver City, N. Mex.	.....do .....	.....do	12. 00	118. 00
Wilcox, Ariz.	.....do .....	.....do	12. 00	108. 00
Draper, Utah.	Ground.....	Encampment troops		4. 00
Provo, Utah.	.....do .....	.....do		5. 00
Ogden, Utah.	2 rooms.....	Offices and storeroom for quartermaster's department.....	25. 00	300. 00
Total.....				10,720. 09

DEPARTMENT OF CALIFORNIA.

San Francisco, Cal.	45 rooms.....	Headquarters offices.....	\$750. 00	\$9,000. 00
	Building.....	Headquarters stable.....	45. 00	112. 50
	1 room.....	Quarters, signal sergeant.....	12. 00	112. 40
	.....do	Quarters, commissary sergeant.....	12. 00	3. 00
	2 rooms.....	Quarters, two privates, First Washington Volunteer Infantry, on duty as clerks.....	12. 00	21. 60
Los Angeles, Cal.	.....do	Offices, inspector-general.....	35. 00	368. 34
Benicia Barracks, Cal.	1 room.....	Quarters, ordnance sergeant.....	10. 00	72. 67
San Diego Barracks, Cal.	Building.....	Hospital.....	70. 00	840. 00
	23 rooms.....	Officers' quarters.....	12. 00	1,248. 00
Total.....				11,776. 51

DEPARTMENT OF THE COLUMBIA.

Portland, Oreg.	7 rooms.....	Offices of quartermaster and paymaster ..	\$110. 00	\$1,332. 00
Vancouver Barracks, Wash.	1 room.....	Quarters for signal sergeant: From July 17, 1897, to Apr. 15, 1898.....	12. 00	114. 00
		From Apr. 16, 1898.....	10. 00	25. 00
Davenport, Wash.		Lodging enlisted men from July 1, 1897, to Apr. 20, 1898.....		84. 50
Seattle, Wash.		Lodging 22 men (pack train), Feb. 11 to 14, 1898.....		33. 00
		Lodging 17 men (pack train), Feb. 11 to 14, 1898.....		25. 50
		Lodging Companies B and H, Fourteenth Infantry, Feb. 16 to 18, 1898.....		60. 00
	3 rooms.....	Office of constructing quartermaster.....	38. 00	456. 00
	2 rooms.....	Stable and wareroom	15. 00	180. 00
Spokane, Wash.	.....do	Office of quartermaster	35. 00	420. 00
	Building.....	Stable for public animals	10. 00	120. 00
Total.....				2,800. 00

GENERAL DEPOTS OF THE QUARTERMASTER'S DEPARTMENT.

New York depot.....	Building...	Office and storage purposes, quartermaster's department.....	\$416. 66	\$833. 32
	.....do	Storage purposes, medical department....	125. 00	87. 50
	.....do	Stable and carriage house for public animals, etc.....	112. 50	1,850. 00
	1 room.....	Quarters for hospital steward on duty with attending surgeon.....	14. 00	168. 00
	.....do	Quarters for hospital steward on temporary duty.....	12. 00	53. 93

Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc.—Continued.

GENERAL DEPOTS OF THE QUARTERMASTER'S DEPARTMENT—Continued.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Philadelphia depot.....		Offices, quartermaster's department.....		\$2,150.04
		Offices, attending surgeon.....		54.00
		do.....		132.00
St. Louis depot.....	Building.....	Storehouse, medical department.....	\$166.67	2,000.00
	2 rooms.....	Stable, quartermaster's department.....	25.00	150.00
San Francisco, Cal.....	1 building.....	Offices and storehouses for the medical, subsistence, and quartermaster's departments.....	666.67	8,000.04
	1 room.....	Quarters for commissary sergeant.....	12.00	144.00
	Storage room in warehouse.....	Storage of oils and turpentine:		
		Gallon.....	.004	106.48
		Barrel.....	.09	
	Basement in building.....	Storage of quartermaster's supplies.....	75.00	122.50
	1 building.....	Storage of subsistence supplies.....	250.00	375.00
	Store and basement.....	Storage of signal supplies.....	50.00	58.33
	Storeroom.....	Storage of medical supplies.....	40.00	40.00
Washington, D. C., depot.	Stables and storehouse.....	Depot stables and storehouse.....	150.00	1,800.00
	1 room.....	Quarters for hospital steward.....	21.00	252.00
	do.....	Quarters for signal sergeant.....	12.00	132.00
	do.....	do.....	12.00	120.00
	do.....	do.....	12.00	120.00
	do.....	do.....	12.00	144.00
	do.....	do.....	12.00	4.00
	do.....	Quarters for hospital steward.....	12.00	128.40
	do.....	do.....	12.00	144.00
	do.....	Quarters for private, hospital corps.....	12.00	144.00
	do.....	do.....	12.00	144.00
	Warehouse.....	Storage of wagons, etc.....	65.00	110.50
	1 room.....	Quarters for quartermaster sergeant, Nashville, Tenn.....	12.00	84.00
	do.....	Quarters for signal sergeant, Nashville, Tenn.....	12.00	4.80
	do.....	Quarters for engineer sergeant, Nashville, Tenn.....	12.00	54.80
	do.....	Quarters for ordnance sergeant, Nashville, Tenn.....	12.00	54.80
	do.....	Quarters for private, battalion of engineers, Nashville, Tenn.....	12.00	54.80
	do.....	Quarters for signal sergeant, Nashville, Tenn.....	12.00	50.00
	do.....	Lodging at Carlisle, Pa.....	.50	.50
	C a m p grounds.....	For detachment Second Infantry on work connected with compilation of the map of military information at Shonkin Creek, Spring Creek, Highwood Creek, Wolf Creek, mouth of Judith River, Warm Spring Creek, Grouse Creek, and Belt Creek, Montana.....	\$ 3.00	108.00
		Office for military attaché, Berlin, Germany.....		389.00
		Office for military attaché, London, England.....		108.00
		Office for military attaché, Rome, Italy.....		225.00
		Office for military attaché, Vienna, Austria.....		135.00
		Office for military attaché, Madrid, Spain.....		26.48
		Office for military attaché, Brussels, Belgium.....		272.54
		Office for military attaché, The Hague, Holland.....		175.00
		Office for military attaché, St. Petersburg, Russia.....		235.20
		Office for military attaché, Lisbon, Portugal.....		80.00
		Office for military attaché, Paris, France.....		360.00
		Office for military attaché, Tokio, Japan.....		140.00
Total.....				21,702.96

\$ Per day.

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department for use as offices, barracks, quarters, encampments, etc.—Continued.

RECAPITULATION.

Departments, etc.	Amount.
Department of the East.....	\$2,782.59
Department of the Gulf.....	17,825.24
Department of the Lakes.....	20,383.22
Department of the Missouri.....	10,220.51
Department of Dakota.....	1,028.00
Department of the Colorado.....	10,720.09
Department of California.....	11,778.51
Department of the Columbia.....	2,800.00
New York depot.....	2,492.75
Philadelphia depot.....	2,338.04
St. Louis depot.....	2,150.00
San Francisco depot.....	8,008.25
Washington depot.....	5,817.82
Total.....	98,890.32

Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Buffalo, N. Y.....	2 rooms.....	Recruiting station.....	\$50.00	\$15.00
Boston, Mass.....	Second, third, and fourth floors.	do.....	60.00	720.00
	Second and third floors	Special recruiting station.....	100.00	142.33
Beverly, Mass.....		Lodgings.....	2.50	8.00
Newburyport, Mass.....		do.....	2.50	10.00
Amesbury, Mass.....		do.....	2.50	10.00
Gloucester, Mass.....		do.....	2.50	10.00
Danvers, Mass.....		do.....	2.50	20.00
Salem, Mass.....		do.....	2.50	20.00
Somerville, Mass.....		do.....	2.50	30.00
Marblehead, Mass.....		do.....	2.50	10.00
Lynn, Mass.....		do.....	2.50	30.00
Boston, Mass.....		do.....	2.50	192.00
Norristown, Pa.....		Recruiting station.....		20.00
Wilkesbarre, Pa.....		Storeroom.....		48.00
		Armory.....		40.00
		Lodgings.....		48.50
Memphis, Tenn.....		do.....		1.50
Hazleton, Pa.....		do.....		7.25
New York, N. Y.....		do.....		6.13
Concord, N. C.....		do.....		2.75
Huntington, W. Va.....		do.....		49.75
Chicago, Ill.....		do.....		180.25
		do.....		9.75
Danville, Ill.....		do.....		6.25
Peoria, Ill.....		do.....		2.80
Rockford, Ill.....		do.....		20.75
Bloomington, Ill.....		do.....		5.50
Monmouth, Ill.....		do.....		2.62
		do.....		12.13
		do.....		2.50
		do.....		2.00
		do.....		1.50
Mount Vernon, Ill.....		do.....		2.25
Carbondale, Ill.....		do.....		2.00
Bellerue, Ill.....		do.....		2.25
Dixon, Ill.....		do.....		2.50
Springfield, Ill.....		do.....		9.25
		do.....		1.50
Jackson, Tenn.....		do.....		10.86
		do.....		1.50
Knoxville, Tenn.....		do.....		47.25
		do.....		17.40

2 Per day each.

Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Jonesboro, Tenn.....		Lodgings.....		\$13.75
Johnson City, Tenn.....	do	do		4.00
Greenville, Tenn.....	do	do		4.25
Chattanooga, Tenn.....	do	do		16.45
Marquette, Mich.....	do	do		30.00
Grand Rapids, Mich.....	do	do		12.00
	do	do		5.40
Big Rapids, Mich.....	do	do		16.62
Sault Ste. Marie, Mich.....	do	do		21.25
Calumet, Mich.....	do	do		4.25
Detroit, Mich.....	do	do		7.25
Monroe, Mich.....	do	do		1.75
Saginaw, Mich.....	do	do		16.38
	do	do		13.65
Warsaw, Ind.....	do	do		3.75
New Albany, Ind.....	do	do		1.00
Bloomington, Ind.....	do	do		10.00
Wabash, Ind.....	do	do		1.95
Frankfort, Ind.....	do	do		.75
Brownstown, Ind.....	do	do		3.40
Vincennes, Ind.....	do	do		8.50
Harrodsburg, Ky.....	do	do		9.00
Henderson, Ky.....	do	do		9.00
Owensboro, Ky.....	do	do		2.00
Madisonville, Ky.....	do	do		8.75
Princeton, Ky.....	do	do		2.00
Danville, Ky.....	do	do		1.00
Lexington, Ky.....	do	do		26.75
Lancaster, Ky.....	do	do		.50
Paducah, Ky.....	do	do		1.75
Covington, Ky.....	do	do		5.83
Flemingsburg, Ky.....	do	do		7.00
Glasgow, Ky.....	do	do		4.50
	do	do		1.40
Russellville, Ky.....	do	do		1.40
Franklin, Ky.....	do	do		5.50
Bowling Green, Ky.....	do	do		15.05
	do	do		1.50
Winchester, Ky.....	do	do		3.00
Morgantown, Ky.....	do	do		4.50
Owensboro, Ky.....	do	do		24.62
Cincinnati, Ohio.....	do	do		11.00
Maysville, Ohio.....	do	do		4.00
Newark, Ohio.....	do	do		22.00
Toledo, Ohio.....	do	do		9.50
Columbus, Ohio.....	do	do		8.40
	do	do		6.25
Waseon, Ohio.....	do	do		18.25
Portage, Wis.....	do	do		8.25
Mauston, Wis.....	do	do		2.20
Madison, Wis.....	do	do		8.25
Fort Atkinson, Wis.....	do	do		7.75
Racine, Wis.....	do	do		5.75
Milwaukee, Wis.....	do	do		4.25
Ripon, Wis.....	do	do		7.00
Hudson, Wis.....	do	do		4.25
Racine, Wis.....	do	do		2.00
Menomonie, Wis.....	do	do		4.25
Toledo, Ohio.....	do	do		30.30
Chicago, Ill.....	Premises.....	Recruiting station.....	\$82.00	984.00
	2 rooms.....	do		57.00
	5 rooms.....	do	100.00	92.86
	4 rooms.....	do	60.00	50.00
	do	do		135.00
Bloomington, Ill.....	1 room.....	do		12.00
Springfield, Ill.....	do	do		11.00
	2 rooms.....	do		9.00
	1 room.....	do	36.00	9.00
Peoria, Ill.....	do	do		18.00
Rockford, Ill.....	2 rooms.....	do		9.00
Monmouth, Ill.....	do	do	30.00	10.00
Elgin, Ill.....	do	do		5.00
Effingham, Ill.....	do	do	15.00	5.50
Hillsboro, Ill.....	do	do		2.00
Mattoon, Ill.....	1 room.....	do	30.00	10.00
Nashville, Tenn.....	Premises.....	do	50.00	600.00
Jonesboro, Tenn.....	1 room.....	do		11.00
Johnson City, Tenn.....	do	do		5.00

Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Knoxville, Tenn	1 room	Recruiting station .....	.....	\$3. 60
.....do .....	.....do .....	.....do .....	.....	5. 25
.....do	4 rooms .....	.....do .....	.....	31. 51
Battle Creek, Mich	1 room .....	.....do .....	.....	21. 40
Jackson, Mich .....	.....do .....	.....do .....	.....	20. 00
.....do .....	.....do .....	.....do	\$12. 00	6. 00
Big Rapids, Mich .....	.....do .....	.....do .....	.....	12. 50
Muskegon, Mich .....	.....do .....	.....do .....	.....	28. 00
Alpena, Mich .....	.....do .....	.....do .....	.....	3. 00
Detroit, Mich	2 rooms .....	.....do .....	.....	30. 00
Lansing, Mich .....	.....do .....	.....do	12. 00	6. 00
Grand Rapids, Mich .....	.....do .....	.....do .....	.....	22. 00
Port Huron, Mich .....	.....do .....	.....do .....	.....	2. 00
Marquette, Mich	1 room .....	.....do	30. 00	15. 00
Saginaw, Mich	4 rooms .....	.....do	25. 00	16. 94
Cheyboygan, Mich	1 room .....	.....do .....	.....	4. 00
Mason, Mich	2 rooms .....	.....do	12. 00	6. 00
Indianapolis, Ind	Premises .....	.....do	50. 00	600. 00
.....do	6 rooms .....	.....do .....	.....	25. 00
.....do	1 room .....	.....do .....	.....	9. 60
.....do .....	.....do .....	.....do	8. 00	2. 00
Evansville, Ind	Premises .....	.....do	50. 41	604. 92
Fort Wayne, Ind	2 rooms .....	.....do	30. 00	10. 00
.....do	3 rooms .....	.....do .....	.....	3. 00
Martinsville, Ind	2 rooms .....	.....do .....	.....	2. 00
Madison, Ind .....	.....do .....	.....do	30. 00	9. 00
Angola, Ind	1 room .....	.....do .....	.....	2. 25
Kokomo, Ind .....	.....do .....	.....do .....	.....	2. 25
Monticello, Ind	2 rooms .....	.....do	30. 00	2. 00
Louisville, Ky	Premises .....	.....do	57. 00	342. 00
.....do .....	.....do .....	.....do	55. 50	333. 30
Henderson, Ky	1 room .....	.....do .....	.....	2. 00
Harrodsburg, Ky .....	.....do .....	.....do	15. 00	2. 50
Madisonville, Ky .....	.....do .....	.....do .....	.....	1. 00
Ashland, Ky .....	.....do .....	.....do	35. 00	35. 00
Morgantown, Ky	2 rooms .....	.....do	15. 00	2. 00
Bowling Green, Ky .....	.....do .....	.....do .....	.....	4. 00
Newport, Ky .....	.....do .....	.....do	5. 00	2. 50
Flemingsburg, Ky	1 room .....	.....do .....	.....	2. 00
Cincinnati, Ohio	Premises .....	.....do	72. 00	864. 00
Xenia, Ohio	4 rooms .....	.....do	25. 00	17. 08
Cleveland, Ohio	Premises .....	.....do	63. 37	760. 44
.....do	1 room .....	.....do .....	.....	22. 00
Newark, Ohio	2 rooms .....	.....do .....	.....	13. 00
Columbus, Ohio	1 room .....	.....do .....	.....	5. 00
.....do	2 rooms .....	.....do .....	.....	33. 00
Toledo, Ohio	1 room .....	.....do .....	.....	7. 50
.....do	3 rooms .....	.....do	33. 33	38. 89
Kenton, Ohio	1 room .....	.....do .....	.....	30. 00
Milwaukee, Wis	Premises .....	.....do	56. 00	672. 00
Portage, Wis	2 rooms .....	.....do	20. 00	4. 00
Appleton, Wis	3 rooms .....	.....do	25. 00	13. 33
Milwaukee, Wis	9 rooms .....	.....do	90. 00	90. 00
.....do	1 room .....	.....do	80. 00	40. 00
Ripon, Wis	2 rooms .....	.....do	15. 00	8. 00
Topeka, Kans .....	.....do .....	.....do	90. 00	30. 00
Sedalia, Mo	1 room .....	.....do	30. 00	14. 00
.....do .....	.....do	Lodgings	15. 00	7. 00
.....do .....	.....do .....	.....do	30. 00	9. 00
Des Moines, Iowa	5 rooms	Recruiting station	50. 00	66. 66
Joplin, Mo .....	.....do	Lodgings	25	1. 50
Neosho, Mo	2 rooms	Recruiting station	30. 00	2. 00
Springfield, Mo .....	.....do .....	.....do	30. 00	11. 00
Neosho, Mo .....	.....do	Lodgings	{ 25	1. 40
.....do .....	.....do .....	.....do	{ 20	.....
Warrensburg, Mo	1 room	Recruiting station	30. 00	3. 00
Joplin, Mo .....	.....do	Lodgings	25	1. 50
Omaha, Nebr	Hall	Recruiting station	150. 00	30. 00
Creston, Iowa	3 rooms .....	.....do	40. 00	10. 00
Des Moines, Iowa	5 rooms .....	.....do	60. 00	24. 00
Red Oak, Iowa	Hall .....	.....do	150. 00	12. 00
Des Moines, Iowa	5 rooms .....	.....do	50. 00	50. 00
Lawrence, Kans	1 room .....	.....do	60. 00	8. 00
Kansas City, Mo .....	.....do .....	.....do	32. 15	15. 05
St. Joseph, Mo .....	.....do	Lodgings	25	5. 25
.....do .....	.....do .....	.....do	25	7. 75
.....do	1 room	Recruiting station	60. 00	24. 00
.....do .....	.....do .....	.....do	60. 00	24. 00
.....do .....	.....do .....	.....do	60. 00	24. 00

Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Hastings, Nebr	1 room	Recruiting station		\$30.00
Lincoln, Nebr	do	do		31.00
Bethany, Mo		Lodgings	\$0.25	7.00
		do	.25	8.00
Carthage, Mo	2 rooms	Recruiting station	30.00	5.00
Springfield, Mo		Lodgings	.15	10.80
Carthage, Mo		do	.25	4.00
		do	.15	
Joplin, Mo	2 rooms	Recruiting station	30.00	3.00
	do	do	30.00	10.00
Grand Island, Nebr		Lodgings	.25	6.25
Kearney, Nebr		do	.25	5.50
	3 rooms	Recruiting station	15.00	2.50
North Platte, Nebr	2 rooms	do		1.25
		Lodgings	.25	13.00
Kansas City, Mo	2 rooms	Recruiting station	40.00	40.00
St. Louis, Mo		Lodgings	.25	32.00
		do	.15	
Kansas City, Mo		do	.15	13.05
Des Moines, Iowa	1 room	Recruiting station	60.00	24.00
		Lodgings	.40	19.30
		do	.15	10.95
Kansas City, Mo		do		
Nebraska City, Nebr	Hall	Recruiting station	105.00	24.50
Lincoln, Nebr		Lodgings	.25	4.00
Stirling, Nebr		do	.25	4.00
Schuyler, Nebr		do	.25	4.00
Lincoln, Nebr	1 room	Recruiting station	60.00	30.00
		Lodgings	.25	4.00
Higginsville, Mo	3 rooms	Recruiting station	45.00	3.00
Hot Springs, Ark	1 room	do		5.00
Lamar, Mo		Lodgings	.25	1.00
		do	.15	10.35
Springfield, Mo		Recruiting station	60.00	2.00
West Plains, Mo	1 room	Lodgings	.25	3.00
Springfield, Mo	1 room	Recruiting station	30.00	6.00
Willow Springs, Mo	do	do	60.00	2.00
		Lodgings	.25	6.50
Cedar Rapids, Iowa	1 room	Recruiting station	30.00	11.00
Hot Springs, Ark		Lodgings	.10	8.00
St. Louis, Mo		do	.25	2.25
Sedalia, Mo	2 rooms	Recruiting station	60.00	36.00
		Lodgings	.20	36.60
Excelsior Springs, Mo	1 room	Recruiting station	30.00	2.00
Newport, Ark		Lodgings	.175	2.10
Little Rock, Ark		do	.225	32.62
Forrest City, Ark		do	.25	19.75
Newport, Ark		do	.25	2.50
Mena, Ark		do	.20	8.00
Forrest City, Ark		do	.25	3.25
		do	.25	3.00
		do	.225	24.30
Little Rock, Ark		do		
Batesville, Ark	1 room	Recruiting station	15.00	5.50
Walnut Ridge, Ark	do	do		5.00
Columbia, Mo	do	do	7.50	1.50
Omaha, Nebr	do	do	25.00	9.17
		Lodgings	.25	10.50
Waterloo, Iowa	1 room	Recruiting station		9.00
Black Rock, Ark		Lodgings	.25	1.00
Olivia, Minn		do		4.50
Crookston, Minn		do		10.50
Duluth, Minn		do		33.50
Winona, Minn		do		11.50
		do		14.25
Austin, Minn	1 room	do		15.75
	do	do		3.00
St. Paul, Minn		do		12.25
		do		4.00
	3 rooms	do		16.00
	5 rooms	do		41.00
Spring Valley, Minn	2 rooms	do	82.00	11.00
	do	do		25.00
Waseca, Minn		Lodgings		5.00
	do	do		4.00
Fairmont, Minn	1 room	do		4.00
	do	do		3.00
New Ulm, Minn		do		4.50
Fairbault, Minn		do		2.75
St. James, Minn		do		2.25

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Minneapolis, Minn.....	8 rooms.....	Lodgings.....	\$85.00	\$147.83
Zumbrota, Minn.....	do.....	do.....		15.00
Albert Lea, Minn.....	do.....	do.....		8.00
Blue Earth City, Minn.....	do.....	do.....		4.25
Walla Walla, Wash.....	2 rooms.....	Recruiting station.....	15.00	1.00
Vancouver, Wash.....	do.....	do.....	15.00	2.00
North Yakima, Wash.....	1 room.....	do.....	45.00	4.50
Seattle, Wash.....	do.....	Lodgings.....		1.00
Spokane, Wash.....	do.....	do.....		1.00
Seattle, Wash.....	do.....	Recruiting station.....		5.00
Tacoma, Wash.....	do.....	do.....		12.00
	2 rooms.....	Lodgings.....		20.25
	do.....	do.....	.50	24.00
	do.....	Rent of furniture for recruiting station.....		2.00
Spokane, Wash.....	do.....	Temporary recruiting station.....		5.00
San Diego, Cal.....	do.....	Lodgings.....		4.50
Riverside, Cal.....	do.....	do.....		1.50
Redlands, Cal.....	do.....	do.....		1.00
San Bernardino, Cal.....	do.....	do.....		1.50
Los Angeles, Cal.....	do.....	do.....		5.50
Santa Ana, Cal.....	2 rooms.....	Recruiting station.....	35.00	3.50
Los Angeles, Cal.....	do.....	Lodgings.....		7.00
San Francisco, Cal.....	do.....	do.....		24.00
Los Angeles, Cal.....	do.....	do.....		13.50
Sacramento, Cal.....	do.....	do.....		7.25
	3 rooms.....	Recruiting station.....		12.50
Stockton, Cal.....	do.....	do.....		6.00
	do.....	Lodgings.....		5.00
San Francisco, Cal.....	1 room.....	Branch recruiting station.....		4.00
	2 rooms.....	do.....		45.00
Fresno, Cal.....	do.....	Lodgings.....		4.75
Bakersfield, Cal.....	do.....	do.....		1.50
Merced, Cal.....	do.....	do.....		6.75
Modesto, Cal.....	do.....	do.....		6.50
Sacramento, Cal.....	do.....	do.....		2.00
Vinalia, Cal.....	do.....	do.....		3.00
Stockton, Cal.....	do.....	do.....		10.25
Cheyenne, Wyo.....	2 rooms.....	Recruiting office.....	12.50	6.07
	do.....	do.....		12.00
	5 rooms.....	Lodgings.....		22.00
	2 rooms.....	Recruiting office.....	12.50	16.67
	do.....	do.....		40.00
	4 rooms.....	Lodgings.....		28.00
Colorado Springs, Colo.....	do.....	do.....		20.25
Cripple Creek, Colo.....	do.....	do.....		40.50
Denver, Colo.....	2 rooms.....	Recruiting office.....	12.00	52.80
	do.....	do.....		4.80
	do.....	Lodgings.....		309.95
	do.....	do.....		64.12
	4 rooms.....	Recruiting office.....	12.00	34.67
Huachuca, Ariz.....	2 rooms.....	do.....		28.00
Leadville, Colo.....	do.....	Lodgings.....		1.75
Phoenix, Ariz.....	do.....	do.....		5.00
Pueblo, Colo.....	do.....	do.....		18.75
Salt Lake, Utah.....	do.....	do.....		50.00
Willcox, Ariz.....	do.....	Lodgings, recruits, en route to Fort Grant.....		62.50
Austin, Tex.....	do.....	Lodgings.....		1.25
Dallas, Tex.....	do.....	do.....		91.75
Milledgeville, Ga.....	do.....	do.....		13.00
Gainesville, Tex.....	do.....	do.....		7.50
Shreveport, La.....	do.....	do.....		11.25
Paris, Tex.....	do.....	do.....		20.70
Dallas, Tex.....	do.....	do.....		36.50
St. Matthews, S. C.....	do.....	do.....		7.50
Paris, Tex.....	do.....	do.....		22.50
Galveston, Tex.....	do.....	do.....		3.25
Tuskegee, Ala.....	do.....	Rent and lodging.....		15.00
San Antonio, Tex.....	1 room.....	Recruiting station.....		13.00
Atlanta, Ga.....	3 rooms.....	do.....	50.00	40.00
	14 rooms.....	do.....	60.00	60.00
Port Gibson, Miss.....	1 room.....	Recruiting service.....	30.00	2.00
Selma, Ala.....	do.....	do.....	22.50	11.25
	do.....	do.....	22.50	3.00
Rome, Ga.....	do.....	do.....		4.68
Galveston, Tex.....	do.....	do.....	26.25	1.75
Milledgeville, Ga.....	do.....	do.....	12.00	7.00
Gainesville, Tex.....	do.....	do.....	12.00	4.40

Property rented by the Quartermaster's Department during the fiscal year ending June 30, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Rome, Ga	1 room	Recruiting service.....	.....	\$4.80
Galveston, Tex	do	do	\$30.00	8.00
Montgomery, Ala	do	do	18 00	6.00
St. Matthews, S. C	do	do	7.50	2.00
Jackson, Miss	do	do	51.30	17.14
Paris, Tex	do	do	12.50	12.50
Galveston, Tex	do	do	21.31	5.00
Elgin, Tex	do	do	30.00	1.00
Houston, Tex	2 rooms	do	30.00	30.00
.....	1 room	do	27.50	6.25
Dallas, Tex	3 rooms	Recruiting station.....	34.00	408.00
San Antonio, Tex	1 room	Office, recruiting service.....	78.00	3.20
.....	do	do	12.00	5.20
Atlanta, Ga	3 rooms	Recruiting service.....	50.00	40.00
.....	14 rooms	do	60.00	60.00
Galveston, Tex	1 room	do	26.25	1.75
.....	do	do	30.00	8.00
.....	do	do	10.00	10.00
.....	do	do	21.31	5.00
Houston, Tex	do	do	37.50	6.25
Rome, Ga	do	do .....	.....	4.80
.....	do	do .....	.....	4.80
Selma, Ala	3 rooms	do	34.00	408.00
Dallas, Tex	1 room	do	30.00	2.00
Port Gibson, Tex	do	do	23.50	11.25
Selma, Ala	do	do	22.50	3.00
Milledgeville, Ga	do	do	12.00	7.65
Galveston, Tex	do	do	12.00	4.40
Montgomery, Ala	do	do	18.00	6.00
St. Matthews, S. C	do	do	7.50	2.00
Jackson, Miss	do	do	51.30	17.14
Paris, Tex	do	do	12.50	12.50
Tuskegee, Ala	do	do	15.00	5.00
Elgin, Tex	do	do	30.00	1.00
Richmond, Va	Cellar and first and second stories.	Recruiting station.....	50.00	600.00
Charlotte, N. C	2 rooms	do	21.17	12.00
.....	do	do	17.00	51.00
Baltimore, Md	9 rooms	do	30.00	105.00
Charlotte, N. C	do	Lodgings .....	.375	179.74
New York City, 25 Third avenue.	1 room	Recruiting stations	130.00	.....
.....	do	do	10.00	1,563.34
New York City, 508 Sixth avenue.	6 rooms	do	110.00	55.00
Albany, N. Y	do	do	40.00	480.00
Brooklyn, N. Y	3 rooms	do	55.00	196.17
Jersey City, N. J	2 rooms	do	35.00	122.51
.....	Lodgings	Lodgings	48 00	48.00
Philadelphia depot	9 rooms	Recruiting station, Philadelphia, Pa .....	.....	370.00
.....	Building	Recruiting station, Pittsburg, Pa .....	.....	900.00
.....	2 rooms	Recruiting station, Philadelphia, Pa .....	.....	1.10
St. Louis depot	2 floors	Lodgings .....	.....	165.80
.....	do	Dormitory, St. Louis, Mo	47.50	570.00
.....	do	Lodgings, Jefferson City, Mo .....	.....	2.50
.....	do	Lodgings, St. Louis, Mo .....	.....	94.25
.....	do	Lodgings, Sedalia, Mo .....	.....	8.25
.....	2 rooms	Recruiting station, Brookfield, Mo .....	.....	6.00
.....	do	Recruiting station, Sedalia, Mo .....	.....	5.50
.....	do	Recruiting station, St. Louis, Mo	60.00
Total	19,227.70

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department from July 1 to August 15, 1898, both inclusive, for use as offices, barracks, quarters, encampments, etc., and the amount of rent paid therefor.

DEPARTMENT OF THE EAST.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Boston, Mass	8 rooms.....	Offices for quartermaster's and subsistence storehouses.	\$90.00	\$135.00
	10 rooms.....	do	458.83	381.94
Battery Point, Del.....	Ground.....	Camp for Eighteenth Pennsylvania Infantry.	800.00	416.67
	do	do	100.00	
Middletown, Del.....	do	Camp for First Delaware Infantry	428.57	642.85
Baltimore, Md.....	6 rooms.....	Quarters for quartermaster-sergeant	10.00	15.00
	do	Quarters for chief musician	12.00	18.00
Winthrop, Mass.....	14 rooms.....	Hospital	83.53	41.66
Fort Mott, N. J.....	Ground.....	Camp for Fourteenth Pennsylvania Infantry.	96.00	144.00
Pennsgrove, N. J.....	Barn.....	Commissary storehouse.....	6.00	9.91
	Ground.....	Drill ground for Second Pennsylvania Infantry.		2.50
Fort Popham, Me.....	2 rooms.....	Quarters for ordnance sergeant	12.00	6.00
Pompton Lakes, N. J....	Barn.....	Commissary storehouse.....	5.00	7.50
	Ground.....	Camp for Third New Jersey Infantry	50.00	75.00
Fort Monroe, Va.....	do	Hospital	41.66	41.66
Falls Church, Va.....	do	Camp Alger		875.00
Dunn Loring, Va.....	do	do		267.00
	do	do	25.00	37.50
Annandale, Va.....	do	do		15.00
Thoroughfare, Va.....	do	do		830.40
Woodburn Manor, Va....	do	do	300.00	450.00
Total				\$, 412.59

DEPARTMENT OF THE GULF.

Chattanooga, Tenn....	1 room and basement.	Storing commissary stores.....	\$75.00	\$112.50
	1 room.....	do	70.00	42.00
	3 rooms.....	do	200.00	213.33
	1 room.....	do	75.00	112.50
	do	do	75.00	80.00
	4 rooms and basement.	do	75.00	112.50
	1 room.....	do	50.00	68.34
	10 rooms and basement.	do	300.00	459.00
	1 room.....	do	300.00	450.00
	8 rooms and basement.	do	50.00	75.00
	4 rooms and basement.	Storing equipment for Quartermaster's Department.	50.00	75.00
	5 rooms.....	Offices, depot quartermaster and commissary.	25.00	37.50
Tampa, Fla.....	Building.....	Offices, headquarters Fourth Army Corps.	10.00	12.33
Mobile, Ala.....	do	Storehouse, quartermaster's and commissary stores.	60.00	90.00
	1 floor.....	Office, Quartermaster's Department	75.00	112.50
	1 room.....	Office, paymaster	10.00	10.00
Key West, Fla.....	1 building.....	United States general hospital	60.00	60.00
	4 buildings.....	do	75.00	75.00
	1 building.....	Office and storerooms, quartermaster's department.	35.00	35.00
Fernandina, Fla.....	Building.....	Office, medical and quartermaster's department.	40.00	28.89
	do	Storehouse, commissary department.....	100.00	72.22
	do	Storehouse of brigade commissary	30.00	15.00
	do	Storehouse, quartermaster's department..	35.00	17.50
	Ground.....	Horse corral	25.00	12.50
Tampa, Fla.....	Building.....	Storehouse, commissary department.....	30.00	45.00
	do	do	75.00	112.50
	do	do	75.00	112.50
	do	Storehouse, quartermaster's department..	30.00	45.00
Port Tampa City, Fla..	do	Storehouse, ordnance department.....	50.00	75.00
	do	do	750.00	1,125.00
Tampa, Fla.....		Offices, quartermaster's department		820.25
		Offices, commissary department	26.50	39.75
	1 room.....	Quarters for quartermaster-sergeant.....		5.00
	do	do		4.00
	Building.....	Storehouse for quartermaster-sergeant ..	35.00	46.67

Property rented by the Quartermaster's Department from July 1 to August 15, 1898, both inclusive, for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE EAST.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Tampa, Fla.....	3 rooms.....	Offices, military information.....	\$30.00	\$45.00
	Building.....	Storehouse, commissary department.....	65.00	97.50
	do.....	do.....	125.00	187.50
	do.....	do.....	400.00	600.00
	do.....	do.....	60.00	60.00
	do.....	Storehouse, quartermaster's department..	125.00	187.50
	do.....	Storehouse, commissary department.....	60.00	60.00
	do.....	do.....	25.00	25.00
	do.....	do.....	75.00	112.50
	Ground.....	Corral, quartermaster's department.....	75.00	112.50
	do.....	Ordnance department.....	250.00	250.00
	do.....	Corral, quartermaster's department.....	220.00	330.00
	Building.....	Storehouse, medical department.....	15.00	22.50
	Ground.....	Quartermaster's department.....	5.00	7.50
	Building.....	Storehouse, quartermaster's department..	35.00	35.00
	do.....	do.....	125.00	187.50
	do.....	Storehouse, commissary department.....	50.00	75.00
	do.....	do.....	75.00	112.50
	Ground.....	Corral, quartermaster's department.....	15.00	11.50
	Building.....	Storehouse, commissary department.....	80.00	114.66
	do.....	Storehouse, quartermaster's department..	225.00	337.50
Port Tampa City, Fla..	do.....	do.....	100.00	150.00
Tampa, Fla.....	do.....	Lodgings, enlisted men.....	2.50	2.50
	Building.....	Storehouse, quartermaster's department..	25.00	37.50
	do.....	do.....	25.00	37.50
	do.....	do.....	25.00	37.50
	do.....	Storehouse, commissary department.....	10.00	15.00
West Tampa, Fla.....	Room.....	do.....	10.00	3.33
Tampa, Fla.....	Stalls.....	Public animals.....	a. 20	48.00
	Building.....	Storehouse, commissary department.....	500.00	700.00
	Room.....	Quarters for quartermaster-sergeant.....	12.00	4.00
	do.....	Quarters for enlisted men.....	.50	5.00
	do.....	Not given.....	16.66	24.99
	Building.....	Storehouse, commissary department.....	20.00	20.00
	do.....	do.....	15.00	15.00
Port Tampa, Fla.....	do.....	Storehouse, quartermaster's department..	.....	600.00
	do.....	do.....	500.00	750.00
	do.....	do.....	125.00	125.00
	do.....	do.....	125.00	125.00
	do.....	do.....	50.00	50.00
	do.....	Storehouse, commissary department.....	100.00	100.00
New Orleans, La.....	8 rooms.....	Offices, paymaster.....	.....	42.25
	Building.....	Offices for quartermaster and commissary.	83.33	125.00
	2 rooms.....	Office for paymaster.....	62.00	24.80
	Building.....	Storehouse for quartermaster and commissary.	225.00	337.50
Hebbronville, Tex.....	Ground.....	Camping ground.....	250.00	125.00
Atlanta, Ga.....	1 room.....	Office, quartermaster's agent.....	8.00	12.00
Galveston, Ga.....	44 rooms.....	Offices, etc., Department of the Gulf.....	1,012.14	1,518.21
Jacksonville, Fla.....	1 room.....	Storeroom.....	10.00	10.00
	do.....	Temporary hospital.....	12.00	3.60
	do.....	Storehouse, quartermaster's department..	60.00	60.00
	do.....	Storehouse, commissary department.....	150.00	150.00
	do.....	do.....	50.00	50.00
	do.....	do.....	30.00	30.00
	do.....	do.....	15.00	15.00
	do.....	Storehouse, medical department.....	35.00	35.00
	do.....	Engineer department.....	16.00	8.00
	do.....	Corral, quartermaster's department.....	125.00	84.65
	do.....	Headquarters, Seventh Army Corps.....	25.00	25.00
	do.....	do.....	20.00	10.00
	do.....	Commissary department.....	17.00	10.97
	do.....	Provost-marshal.....	22.50	22.50
Total.....				12,821.24

a Per stall.

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department from July 1 to August 15, 1898, both inclusive, for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE LAKES.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Detroit, Mich.....	Building....	Office and storehouse, quartermaster's department.	\$25. 00	\$37. 50
Cincinnati, Ohio	4 rooms.....	Office and storerooms, quartermaster's department.	275. 00	302. 50
	.....do	Office and storerooms, subsistence department.	225. 00	112. 50
	.....do .....	.....do	225. 00	225. 00
Chicago, Ill	1 room	Office and storerooms, quartermaster's department.	50. 00	75. 00
	28 rooms....	Offices, headquarters department	1, 000. 00	1, 500. 00
	6 floors	Offices, subsistence, and storehouse for subsistence and quartermaster's departments.	416. 66	624. 99
	Building....	Stables for animals of the quartermaster's department.	150. 00	225. 00
	.....do	Warehouse for quartermaster's department.	125. 00	187. 50
	.....do .....	.....do	200. 00	300. 00
	.....do .....	.....do	100. 00	50. 00
Total				2, 639. 99

DEPARTMENT OF THE MISSOURI.

Ogden, Utah	2 rooms....	Office and storeroom for quartermaster's department.	\$25. 00	\$37. 50
Rush Springs, Ind. T. ..	Shelter	For teamsters and mules	25. 00	37. 50
Omaha, Nebr	1 room each.	Quarters for 4 noncommissioned officers on duty at the Trans-Mississippi Exposition.	12. 00 (each)	72. 00
	39 rooms....	Department headquarters	666. 66	1, 000. 00
Total				1, 147. 00

DEPARTMENT OF DAKOTA.

Helena, Mont.....	5 rooms	Offices for quartermaster's department ...	\$50. 00	\$75. 00
	1 room	Storeroom for quartermaster's department..	10. 00	15. 00
	.....do	Stable for quartermaster's department....	10. 00	15. 00
Total				105. 00

DEPARTMENT OF THE COLORADO.

Cooley, Ariz.....	1 room	Quarters for signal sergeant.....	\$12. 00	\$18. 00
Denver, Colo.....	47 rooms	Headquarters	684. 66	1, 026. 99
	Building....	Stables, quartermaster's department	50. 00	75. 00
Holbrook, Ariz	1 room	Office, quartermaster's agent	5. 00	7. 50
Price, Utah	Building....	Storehouse, quartermaster's department..	15. 00	22. 50
Total				1, 149. 99

DEPARTMENT OF CALIFORNIA.

San Francisco, Cal	45 rooms	Headquarters offices.....	\$750. 00	\$1, 125. 00
	9 rooms	Quarters, hospital corps	12. 00	18. 00
	2 rooms	Quarters, signal corps	12. 00	18. 00
	.....do	Quarters, 2 privates First Washington Volunteer Infantry, on duty as clerks.	12. 00	18. 00
San Diego Barracks, Cal.	Building....	Hospital	70. 00	105. 00
	10 rooms	Officers' quarters	12. 00	18. 00
Fruitvale, Cal.....	8 rooms	Offices, mustering officer, quartermaster, and commissary.	12. 00	18. 00
	1 room	Storehouse, commissary	2. 50	3. 75
Total				1, 500. 00

^a Per week.

Property rented by the Quartermaster's Department from July 1 to August 15, 1898, both inclusive, for use as offices, barracks, quarters, encampments, etc.—Continued.

DEPARTMENT OF THE COLUMBIA.

Post or station.	Kind of property.	Purpose for which used.	Monthly rate of rent.	Total amount for year.
Portland, Oreg.....	7 rooms.....	Offices of quartermaster and paymaster..	\$110. 00	\$168. 50
Vancouver Barracks, Wash.	1 room.....	Quarters for signal sergeant.....	10. 00	15. 00
Seattle, Wash.....	.....do.....	Storing 5 sleds, used in relief expedition and returned to this station.	20. 00	30. 00
Spokane, Wash.....	2 rooms.....	Office of quartermaster.....	35. 00	52. 50
	Buildings ..	Stable for public animals.....	10. 00	15. 00
Total				279. 00

GENERAL DEPOTS OF THE QUARTERMASTER'S DEPARTMENT.

New York depot.....	Building....	Office and storage purposes, quartermaster's department.	\$416. 66	\$624. 99
	.....do.....	Storage purposes, medical department....	125. 00	187. 50
	.....do.....	Stable and carriage house for public animals, etc.	112. 50	168. 75
	1 room.....	Quarters for hospital steward on duty with attending surgeon.	14. 00	21. 00
	.....do.....	Quarters for hospital steward on temporary duty.	12. 00	18. 00
	Building....	Storage purposes, commissary department.	100. 00	33. 33
Philadelphia depot		Offices, quartermaster's department		268. 75
		Storeroom, quartermaster's department		516. 67
St. Louis depot	2 floors and attic.	Storehouse, medical department.....	41. 67	8. 33
	Building....	.....do.....	166. 67	250. 00
	2 rooms.....	Stable, quartermaster's department	25. 00	37. 50
San Francisco, Cal.....	1 building ..	Offices and storehouses for the medical, subsistence, and quartermaster's departments.	666. 67	1, 000. 00
	1 room.....	Quarters for commissary sergeant	12. 00	18. 00
	Storage room in warehouse.	Storage of oils and turpentine: Gallon.....	. 00	1. 19
	Basement in building.	Barrel.....	. 09	
	1 building ..	Storage of quartermaster's supplies	75. 00	112. 50
	Store and basement.	Storage of subsistence supplies	250. 00	375. 00
	Storeroom ..	Storage of signal supplies.....	50. 00	50. 00
Washington, D. C., depot.	Stables and storehouses.	Storage of medical supplies	40. 00	60. 00
	Warehouse.	Depot stables and storehouses.....	175. 00	262. 50
	1 room.....	Storage of wagons.....	65. 00	97. 50
	.....do.....	Quarters for hospital steward	21. 00	32. 00
	.....do.....	Quarters for signal sergeant.....	12. 00	18. 00
	.....do.....	Quarters for private, hospital corps	12. 00	18. 00
	.....do.....	.....do.....	12. 00	18. 00
	.....do.....	Quarters for signal corps sergeant.....	12. 00	18. 00
		Office for military attaché, The Hague, Holland.	90. 00	67. 50
Total				4, 284. 01

RECAPITULATION.

Departments, etc.	Amount.
Department of the East.....	\$3, 412. 59
Department of the Gulf.....	12, 821. 24
Department of the Lakes.....	3, 639. 99
Department of the Missouri.....	1, 147. 00
Department of Dakota	105. 00
Department of the Colorado.....	1, 149. 99
Department of California	1, 540. 50
Department of the Columbia	279. 00
New York depot	1, 053. 57
Philadelphia depot	785. 42
St. Louis depot	295. 83
San Francisco depot.....	1, 617. 69
Washington depot	531. 50
Total	28, 429. 33

QUARTERMASTER-GENERAL.

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Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Boston, Mass	Second, third, and fourth floors.	Recruiting station	\$60.00	\$90.00
	Second and third floors.	Special recruiting station	100.00	150.00
		Lodgings	a. 50	166.50
Clinton, Mass		do	a. 25	38.25
Salem, Mass		do	a. 50	3.50
Amesbury, Mass		do	a. 50	3.00
Danvers, Mass		do	a. 50	5.00
Somerville, Mass		do	a. 50	10.00
Newburyport, Mass		do	a. 50	2.50
Wilkesbarre, Pa		Recruiting station		16.00
Augusta, Me		do		44.10
Wilmington, Del		do		4.00
Huntington, W. Va		do		2.45
Portsmouth, N. H		do		4.17
Philadelphia, Pa		do		75.00
Scranton, Pa		do		60.00
Williamsport, Pa		do		26.50
Concord, N. H		do		45.00
Littleton, N. H		do		10.00
Reading, Pa		do		22.00
Worcester, Mass		do		10.00
Pottsville, Pa		do		4.00
Wilmington, Del		do		24.50
Trenton, N. J		do		8.40
Providence, R. I		do		15.00
Roanoke, Va		do		2.50
Richmond, Va		do		7.50
Lewiston, Me		do		10.75
Charleston, W. Va		Lodgings		12.55
Albany, N. Y		do		20.75
Richmond, Va		Lodgings and recruiting station		164.25
Wilkesbarre, Pa		Lodgings		32.00
Scranton, Pa		do		42.75
Brooklyn, N. Y		do		63.00
Portland, Me		do		72.00
Harrisburg, Pa		do		10.50
Reading, Pa		do		14.15
Norristown, Pa		do		31.75
Parkersburg, W. Va		do		21.20
Augusta, Me		do		90.00
Wilmington, Del		do		25.65
Lewiston, Me		do		330.80
Huntington, W. Va		do		32.85
Philadelphia, Pa		do		41.80
Patrick, W. Va		do		4.00
Hillaville, Va		do		8.75
Hinton, W. Va		do		8.00
Easton, Md		do		19.65
Crisfield, Md		do		5.00
Concord, N. H		do		63.00
Littleton, N. H		do		19.95
New York, N. Y		do		366.45
Worcester, Mass		do		17.00
Clifton Forge, Va		do		8.00
Marion, Va		do		1.00
Concord, N. H		do		65.20
Trenton, N. J		do		11.80
Shamokin, Pa		do		13.40
Pottsville, Pa		do		2.80
Pula-ki, Va		do		1.75
Newton, Va		do		5.00
Christiansburg, Va		do		6.00
Marion, Va		do .....		.75
East Radford, Va		do		1.50
Colburn, Va		do .....		.50
Newark, N. J		do		26.61
Rochester, Va		do		31.78
Littleton, N. H		do		28.35
Wheeling, W. Va		do		17.00
Birmingham, Ala	2 rooms	Recruiting service	20.00	12.00
Macon, Ga	1 room	do	10.00	8.99
Dalton, Ga	do	do	30.00	3.00
Anniston, Ala	do	do	14.284	10.00

a Per day each.

Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Savannah, Ga.....	4 rooms.....	Recruiting service.....	\$75.00	\$13.00
Atlanta, Ga.....	17 rooms.....	do.....	110.00	58.00
Charleston, S. C.....	2 rooms.....	do.....	18.00	6.00
Orangeburg, S. C.....	1 room.....	do.....	20.00	3.33
Macon, Ga.....	2 rooms.....	do.....	25.00	14.99
Dallas, Tex.....	1 room.....	do.....	5.00	3.33
Miami, Fla.....	3 rooms.....	do.....	25.40	7.47
Jackson, Miss.....	2 rooms.....	do.....	10.00	6.67
Galveston, Tex.....	1 room.....	do.....	30.00	3.00
Monroe, La.....	do.....	do.....	24.00	4.00
Lake Charles, La.....	do.....	do.....	15.00	3.50
New Orleans, La.....	do.....	do.....	15.00	4.00
Lafayette, La.....	do.....	do.....	9.00	1.50
Meridian, Miss.....	do.....	do.....	30.00	3.00
Savannah, Ga.....	do.....	do.....	9.00	5.40
Beasemer, Ala.....	do.....	do.....	45.00	9.00
Atlanta, Ga.....	do.....	do.....	27.27	10.00
Rome, Ga.....	do.....	do.....	40.00	10.00
Temple, Tex.....	do.....	do.....	30.00	6.00
Monroe, La.....	do.....	do.....	18.75	2.50
Seima, Ala.....	2 rooms.....	do.....	24.00	2.40
Macon, Ga.....	1 room.....	do.....	12.50	5.83
Americus, Ga.....	do.....	do.....	8.58	4.29
Cameron, Tex.....	do.....	do.....	15.00	2.50
Beasemer, Ala.....	do.....	do.....	15.00	3.00
Atlanta, Ga.....	do.....	do.....	27.27	5.45
Rome, Ga.....	do.....	do.....	30.00	14.00
Marion, S. C.....	2 rooms.....	do.....	30.00	2.00
Gainesville, Fla.....	do.....	do.....	10.00	8.00
Meridian, Miss.....	1 room.....	do.....	80.00	8.00
Columbia, Ga.....	do.....	do.....	9.00	3.75
Wadley, Ga.....	2 rooms.....	do.....	30.00	1.00
Thomasville, Ga.....	do.....	do.....	45.00	6.00
Mobile, Ala.....	1 room.....	do.....	60.00	14.00
Macon, Ga.....	do.....	do.....	15.00	5.50
Columbia, S. C.....	do.....	do.....	20.00	20.00
New Orleans, La.....	do.....	do.....	15.00	5.00
Macon, Ga.....	2 rooms.....	do.....	9.00	1.50
Spartanburg, S. C.....	1 room.....	do.....	25.00	25.00
Atlanta, Ga.....	14 rooms.....	do.....	30.00	1.00
Charleston, S. C.....	2 rooms.....	do.....	60.00	60.00
Savannah, Ga.....	do.....	do.....	18.00	18.00
Asheville, N. C.....	1 room.....	do.....	45.00	37.00
San Antonio, Tex.....	do.....	do.....	6.00	2.80
Atlanta, Ga.....	do.....	do.....	31.00	31.00
Dallas, Tex.....	3 rooms.....	do.....	31.00	31.00
Mobile, Ala.....	1 room.....	do.....	84.00	84.00
Jackson, Miss.....	2 rooms.....	do.....	15.00	10.00
Milledgeville, Ga.....	1 room.....	do.....	10.00	7.67
Birmingham, Ala.....	3 rooms.....	do.....	30.00	3.00
Savannah, Ga.....	4 rooms.....	do.....	13.40	6.67
Millen, Ga.....	3 rooms.....	do.....	22.50	9.50
Charleston, S. C.....	2 rooms.....	do.....	20.00	26.50
Augusta, Ga.....	do.....	do.....	15.00	15.00
Baton Rouge, La.....	do.....	do.....	11.25	5.50
Augusta, Ga.....	do.....	do.....	22.50	16.00
Macon, Ga.....	1 room.....	do.....	18.50	2.25
New Iberia, La.....	do.....	do.....	8.00	1.71
Columbia, Miss.....	3 rooms.....	do.....	8.00	1.14
Waco, Tex.....	1 room.....	do.....	30.00	4.00
Spartanburg, S. C.....	do.....	do.....	9.00	2.40
Sumter, S. C.....	do.....	do.....	18.00	3.00
Blacksburg, S. C.....	do.....	do.....	39.00	19.50
Austin, Tex.....	do.....	do.....	22.50	15.00
Mobile, Ala.....	do.....	do.....	5.00	5.00
Atlanta, Ga.....	do.....	do.....	15.00	7.00
Enfauia, Ala.....	do.....	do.....	7.50	1.50
Atlanta, Ga.....	do.....	do.....	7.50	1.50
Columbia, S. C.....	do.....	do.....50
Macon, Ga.....	do.....	do.....	3.00
Chester, S. C.....	do.....	do.....50
.....	3.00
.....	11.40
.....35
.....	1.75
.....	2.75
.....	25.00
.....	4.90

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Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Birmingham, Ala.....		Lodgings.....		\$12.60
San Antonio, Tex.....		do.....		19.00
Atlanta, Ga.....		do.....		55.00
Charleston, S. C.....		do.....		2.00
Mobile, Ala.....		do.....		1.25
		do.....		10.50
Selma, Ala.....		do.....		6.50
Eufaula, Ala.....		do.....		8.25
Asheville, N. C.....		do.....		2.10
		do.....		1.00
Sylvania, Ga.....		do.....		3.25
Savannah, Ga.....		do.....		3.50
Eufaula, Ala.....		do.....		6.00
		do.....		2.00
Dallas, Tex.....		do.....		47.50
Charleston, S. C.....		do.....		15.50
Atlanta, Ga.....		do.....		7.50
		do.....		5.50
		do.....		6.25
		do.....		7.50
Ardmore, Ind. T.....		do.....		36.00
Dallas, Tex.....		do.....		2.25
Blacksburg, S. C.....		do.....		4.25
Sumter, S. C.....		do.....		.50
Florence, S. C.....		do.....		7.80
Birmingham, Ala.....		do.....		3.25
Blacksburg, S. C.....		do.....		9.40
Waco, Tex.....		do.....		2.00
Austin, Tex.....		do.....		1.75
Jacksonville, Fla.....		do.....		124.25
Dallas, Tex.....		do.....		5.00
Orangeburg, S. C.....		do.....		1.00
Selma, Ala.....		do.....		15.50
Anniston, Ala.....		do.....		14.99
Macon, Ga.....		do.....		41.75
Dallas, Tex.....		do.....		18.90
Vicksburg, Miss.....		do.....		3.50
Waco, Tex.....		do.....		9.20
Atlanta, Ga.....		do.....		9.25
Birmingham, Ala.....		do.....		62.50
Fort Worth, Tex.....		do.....		3.75
San Antonio, Tex.....		do.....		13.75
Wadley, Ga.....		do.....		2.50
Birmingham, Ala.....		do.....		10.95
Miami, Fla.....	1 room	Rent and lodgings.....	\$17.40	12.00
Birmingham, Ala.....	2 rooms	Recruiting service.....	20.00	8.99
Macon, Ga.....	1 room	do.....	10.00	3.00
Dalton, Ga.....	do	do.....	30.00	10.00
Anniston, Ala.....	do	do.....	14.28	13.00
Savannah, Ga.....	4 rooms	do.....	75.00	58.00
Atlanta, Ga.....	17 rooms	do.....	110.00	6.00
Charleston, S. C.....	2 rooms	do.....	18.00	3.33
Orangeburg, S. C.....	1 room	do.....	20.00	14.99
Macon, Ga.....	2 rooms	do.....	25.00	3.33
Dallas, Tex.....	1 room	do.....	5.00	7.47
Miami, Fla.....	3 rooms	do.....	25.40	6.67
Jackson, Miss.....	2 rooms	do.....	10.00	2.00
Galveston, Tex.....	1 room	do.....	30.00	4.00
Monroe, La.....	do	do.....	24.00	3.50
Lake Charles, La.....	do	do.....	15.00	4.00
New Orleans, La.....	do	do.....	15.00	1.50
	do	do.....	9.00	3.00
Lafayette, La.....	do	do.....	30.00	5.40
Meridian, Miss.....	do	do.....	9.00	9.00
Savannah, Ga.....	do	do.....	45.00	10.00
Bessemer, Ala.....	do	do.....	27.27	6.00
Atlanta, Ga.....	do	do.....	40.00	2.50
Rome, Ga.....	do	do.....	30.00	2.40
Temple, Tex.....	do	do.....	18.75	5.83
Monroe, La.....	do	do.....	24.00	4.29
Selma, Ala.....	2 rooms	do.....	12.50	2.50
Macon, Ga.....	1 room	do.....	8.58	2.00
Americus, Ga.....	do	do.....	15.00	5.45
Cameron, Tex.....	do	do.....	15.00	14.00
Bessemer, Ala.....	do	do.....	27.27	2.00
Atlanta, Ga.....	do	do.....	30.00	8.00
Rome, Ga.....	do	do.....	30.00	8.00
Marion, S. C.....	2 rooms	do.....	10.00	30.00
Gainesville, Fla.....	do	do.....	30.00	8.00

Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Meridian, Miss	1 room.....	Recruiting service.....	\$9.00	\$3.75
Columbia, Ga.....	do.....	do.....	30.00	1.00
Wadley, Ga.....	2 rooms.....	do.....	45.00	6.00
Thomasville, Ga.....	do.....	do.....	60.00	14.00
Mobile, Ala.....	1 room.....	do.....	15.00	5.50
Macon, Ga.....	do.....	do.....	20.00	20.00
Columbia, S. C.....	do.....	do.....	15.00	5.00
New Orleans, La.....	do.....	do.....	9.00	1.50
Macon, Ga.....	2 rooms.....	do.....	25.00	25.00
Spartanburg, S. C.....	1 room.....	do.....	30.00	1.00
Atlanta, Ga.....	1 1/2 rooms.....	do.....	60.00	60.00
Charleston, S. C.....	2 rooms.....	do.....	18.00	18.00
Savannah, Ga.....	do.....	do.....	45.00	37.00
Asheville, N. C.....	1 room.....	do.....	6.00	2.40
San Antonio, Tex.....	do.....	do.....	31.00	31.00
Atlanta, Ga.....	do.....	do.....	31.00	31.00
Dallas, Tex.....	3 rooms.....	do.....	34.00	34.00
Mobile, Ala.....	1 room.....	do.....	15.00	10.00
Jackson, Miss.....	2 rooms.....	do.....	10.00	7.67
Milledgeville, Ga.....	1 room.....	do.....	30.00	3.00
Birmingham, Ala.....	3 rooms.....	do.....	13.40	6.67
Savannah, Ga.....	4 rooms.....	do.....	22.50	9.50
Millen, Ga.....	9 rooms.....	do.....	20.00	26.50
Charleston, S. C.....	2 rooms.....	do.....	15.00	15.00
Augusta, Ga.....	do.....	do.....	11.25	5.50
Baton Rouge, La.....	do.....	do.....	22.50	16.00
Angola, La.....	do.....	do.....	18.50	2.25
Macon, Ga.....	1 room.....	do.....	8.00	1.71
do.....	do.....	do.....	8.00	1.14
New Iberia, La.....	do.....	do.....	30.00	4.00
do.....	do.....	do.....	9.00	2.40
do.....	do.....	do.....	18.00	3.00
Columbia, Miss.....	3 rooms.....	do.....	39.00	19.15
Waco, Tex.....	1 room.....	do.....	22.50	15.00
Spartanburg, S. C.....	do.....	do.....	5.00	5.00
Sumter, S. C.....	do.....	do.....	15.00	7.00
Blacksburg, S. C.....	do.....	do.....	7.50	1.50
do.....	do.....	do.....	7.50	1.50
Chicago, Ill.....	do.....	Lodgings.....	119.75	119.75
Joliet, Ill.....	do.....	do.....	29.00	29.00
Knoxville, Tenn.....	do.....	do.....	9.75	9.75
Chattanooga, Tenn.....	do.....	do.....	34.25	34.25
Grand Rapids, Mich.....	do.....	do.....	9.00	9.00
do.....	do.....	do.....	3.30	3.30
Bay City, Mich.....	do.....	do.....	3.50	3.50
Big Rapids, Mich.....	do.....	do.....	2.12	2.12
Holland, Mich.....	do.....	do.....	2.50	2.50
Traverse City, Mich.....	do.....	do.....	22.75	22.75
Calumet, Mich.....	do.....	do.....	2.00	2.00
Sault Ste. Marie, Mich.....	do.....	do.....	6.00	6.00
Marietta, Mich.....	do.....	do.....	24.00	24.00
Hopkinsville, Ky.....	do.....	do.....	4.00	4.00
Newport, Ky.....	do.....	do.....	9.90	9.90
Elizabethtown, Ky.....	do.....	do.....	3.50	3.50
Covington, Ky.....	do.....	do.....	1.16	1.16
do.....	do.....	do.....	12.50	12.50
Hopkinsville, Ky.....	do.....	do.....	7.50	7.50
Owensboro, Ky.....	do.....	do.....	35.87	35.87
Maysville, Ky.....	do.....	do.....	5.00	5.00
Columbus, Ohio.....	do.....	do.....	24.20	24.20
Lima, Ohio.....	do.....	do.....	3.75	3.75
Columbus, Ohio.....	do.....	do.....	7.50	7.50
Wansee, Ohio.....	do.....	do.....	34.25	34.25
Dayton, Ohio.....	do.....	do.....	11.85	11.85
do.....	do.....	do.....	1.25	1.25
do.....	do.....	do.....	8.40	8.40
Madison, Wis.....	do.....	do.....	1.75	1.75
Ripon, Wis.....	do.....	do.....	5.00	5.00
Chicago, Ill.....	2 rooms.....	Recruiting station.....	123.00	123.00
do.....	do.....	do.....	50.00	50.00
do.....	do.....	do.....	110.71	110.71
do.....	4 rooms.....	do.....	139.50	139.50
do.....	do.....	do.....	14.28	14.28
Nashville, Tenn.....	2 rooms.....	do.....	75.00	75.00
Chattanooga, Tenn.....	do.....	do.....	10.40	10.40
do.....	1 room.....	do.....	3.50	3.50
do.....	2 rooms.....	do.....	5.00	5.00

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Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
Grand Rapids, Mich...	2 rooms	Recruiting station		\$5.00
	3 rooms	do		30.00
Traverse City, Mich...	1 room	do		11.00
Detroit, Mich	do	do		62.00
Manistee, Mich	do	do		14.00
Louisville, Ky	2 rooms	do		81.25
Maysville, Ky	do	do		7.00
Cleveland, Ohio	do	do		95.05
Lima, Ohio	1 room	do		1.00
	do	do		14.00
Columbus, Ohio	2 rooms	do		15.00
Cincinnati, Ohio	do	do		108.00
Dayton, Ohio	do	do		12.00
Milwaukee, Wis	9 rooms	do		80.00
Madison, Wis	2 rooms	do		84.00
Indianapolis, Ind	do	do		75.00
	3 rooms	do		14.00
Evansville, Ind.	2 rooms	do		75.61
Sheldon, Iowa	1 room	do	\$15.00	11.00
		Lodgings	.25	26.25
St. Louis, Mo		do	.25	19.00
Kansas City, Mo.		do	.15	22.95
Ord, Nebr.		do	.20	13.80
Grand Island, Nebr.		do	.20	11.80
Sedalia, Mo.	2 rooms	Recruiting station	60.00	10.00
		Lodgings	.20	5.20
Des Moines, Iowa	5 rooms	Recruiting station	50.00	50.00
Omaha, Nebr.	Hall	do	105.00	63.00
Lincoln, Nebr.	1 room	do	60.00	20.00
		Lodgings	.25	2.50
		do	.25	2.50
Schuyler, Nebr.		do	.25	2.50
Sterling, Nebr		do	.25	2.00
Mexico, Mo	2 rooms	Recruiting station	15.00	14.00
Keokuk, Iowa		Lodgings	.25	40.50
		do	.50	.50
		do	.20	22.00
DuQueen, Ark		do	.25	7.50
St. Louis, Mo		do	.25	17.50
		do	.25	12.75
Texarkana, Tex		do	.25	14.00
Eldorado, Ark		do	.25	3.50
Omaha, Nebr	1 room	Recruiting station	25.00	10.00
		Lodgings	.25	101.00
Mena, Ark	1 room	Recruiting station	37.50	5.00
Little Rock, Ark		Lodgings	.225	30.15
	1 room	Recruiting station	5.00	5.00
Mena, Ark		Lodgings	.25	8.00
St. Paul, Minn		do		22.20
		do		46.75
		do		2.00
	3 rooms	do		8.00
	5 rooms	do	82.00	82.00
Winona, Minn		do		1.00
Minneapolis, Minn	7 rooms	do	85.00	73.67
Blue Earth City, Minn		do		18.00
Albert Lea, Minn		do		2.25
Denver, Colo.	4 rooms	Recruiting office	20.00	120.00
		Lodgings		6.50
	2 rooms	Recruiting office		20.00
	do	Lodgings		15.00
		do		69.00
		do		23.00
		Recruiting office		6.00
	2 rooms	Lodgings		7.50
Sterling, Colo.	1 room	Recruiting office		3.00
Willeox, Ariz		do		16.50
San Francisco, Cal.	1 room	Branch recruiting station		13.00
		Lodgings		63.00
Woodland, Cal		do		1.50
Bakersfield, Cal.		do		.75
Sacramento, Cal		do		3.25
Carson City, Nev		do		2.25
Reno, Nev		do		5.50
	1 room	Recruiting station		15.00
San Francisco, Cal.	5 rooms	General recruiting station	72.50	36.25
	2 rooms	do	65.00	65.00

Property rented by the Quartermaster's Department from July 1 to August 15, 1898, for the recruiting service—Continued.

Place where rented.	Number of rooms.	Purpose for which used.	Monthly rate of rent.	Total amount for the year.
The Dalles, Oreg.		Lodgings	\$0.25	\$3.00
Portland, Oreg.		do .....	.20	30.20
Seattle, Wash.	1 room	Recruiting station		22.00
	do	do		10.00
		Lodgings .....	.25	17.25
Baker City, Oreg.		do .....	.20	1.60
Portland, Oreg.	1 room	Recruiting station		5.00
		Lodgings .....	.25	3.25
Salem, Oreg.	5 rooms	Recruiting station		43.00
		Lodgings .....	.25	2.75
New York, N. Y.	14 rooms	Recruiting station	130.00	195.00
	1 room	do	10.00	15.00
	6 rooms	do	110.00	165.00
Albany, N. Y.	do	do	40.00	60.00
Brooklyn, N. Y.	3 rooms	do	55.00	82.50
Philadelphia depot.	9 rooms	Recruiting station, Philadelphia, Pa.		108.75
	Building	Recruiting station, Pittsburg, Pa.		112.50
	1 room	Recruiting station, Harrisburg, Pa.		23.32
	2 rooms	Recruiting station, Philadelphia, Pa.		24.00
		Lodgings, Philadelphia, Pa.		18.50
		Lodgings, Harrisburg, Pa.		16.25
St. Louis depot	2 floors	Dormitory, St. Louis, Mo.	47.50	71.25
	2 rooms	Recruiting station, Mena, Ark.		3.00
	do	Recruiting station, Austin, Tex.		7.50
	1 room	Recruiting station, Mobile, Ala.		15.00
	do	Recruiting station, Knoxville, Tenn.		2.50
	2 rooms	do		9.62
	do	Recruiting station, El Paso, Tex.		2.50
	1 room	Recruiting station, Nashville, Tenn.		12.00
		Lodgings, Newport, Ark. ....		.50
		Lodgings, Mena, Ark.		2.00
		Lodgings, Texarkana, Tex.		1.00
		Lodgings, New Orleans, La.		5.00
		Lodgings, Fort Worth, Tex.		5.50
		Lodgings, Austin, Tex.		8.25
		Lodgings, Palestine, Tex. ....		.50
		Lodgings, Newton, Kans.		2.25
		Lodgings, El Paso, Tex. ....		.50
		Lodgings, Little Rock, Ark.		0.30
		Lodgings, Vicksburg, Miss. ....		.90
		Lodgings, Nashville, Tenn.		3.15
		Lodgings, Meridian, Miss.		1.25
Richmond, Va.	Cellar and first and second stories.	Recruiting station	50.00	75.00
Charlotte, N. C.	2 rooms	do	17.00	25.50
Baltimore, Md.	9 rooms	do	30.00	45.00
Total				9,043.50

SUPPLEMENTARY REPORT ON PERMANENT CAMPS, DEPOTS, AND GENERAL HOSPITALS TO SEPTEMBER 30, 1898.

The construction and repair division has had general charge of renting land, erection of temporary buildings, water supply, plumbing, sinks, and other sanitary conveniences in connection with encampments of troops.

The following reports cover the expenditures authorized and the cost of the work, so far as reported by the officers on duty at the various camps.

TAMPA DEPOT, FLORIDA.

This point having been selected for mobilization and embarkation of troops and as a base of supplies for the Cuban campaign, the depot quartermaster, about April 21, 1898, proceeded to hire necessary store-

houses and offices, arrange for water supply, etc., at Tampa and Port Tampa.

The total amount paid for rent of offices, storehouses, corral, cattle pens, stables, etc., to August 15, 1898, was, approximately..... \$17,367.43
 A quartermaster's storehouse was erected at a cost of..... 13,897.50
 For fencing a corral there was allotted..... 600.00
 And August 23, for cleaning up vacated camps..... 2,000.00
 Total..... 34,864.93

The details for supplying the camps at Tampa with water are not on record in this office. City water was purchased, meter measure.

MOBILE DEPOT, ALABAMA.

About April 24, 1898, 500 acres of land were rented for this camp at \$100 per month. The ground was reported as high, with open pine woods and ample sanitary water supply. A little later 220 acres additional were rented at \$100 per month.

On April 26, 1898, authority was given for hiring or building storehouses for subsistence or other stores, and on May 5, 1898, \$700 was allotted for connecting the camp with city water main, city water being supplied at 15 cents per 1,000 gallons. On May 24, 1898, authority was given to extend water line as new regiments arrived, if necessary, at a cost of \$250 per regiment.

A rough storehouse was constructed at a cost of \$600. Two large subsistence storehouses were hired at \$50 and \$200 per month, respectively, and another large storehouse with water power for elevators at \$165 per month. An office was rented for the quartermaster's department at \$75 per month.

Other small expenditures were made for rents, water supply, etc. The total amount paid for rent to August 15, 1898, was \$1,305.

CAMP GEO. H. THOMAS, GA.

On April 26, 1898, the Commissary-General of Subsistence requested that a storehouse be rented in Chattanooga for use of troops at this camp.

On May 11 authority was given to hire 300,000 cubic feet of storage in Chattanooga, and on May 13 this authority was extended to hire as much additional space as was necessary.

Total amount paid for rent in Chattanooga to August 15, 1898, was..... \$3,435.33

Temporary buildings were erected and other improvements made at Chickamauga Park, the approximate cost being as follows:

Storehouses for subsistence, quartermaster's and medical supplies.....	11,318.36
Shops and forges	900.00
Ordnance depot.....	1,600.00
Electric lighting, water, and sewer systems, and other improvements were made to the Leiter General Hospital (a building purchased by Mrs. L. Z. Leiter and turned over to the Government at the nominal rental of \$1) ..	4,997.25
10 pavilions for Sternberg General Hospital	2,840.40
7 pavilions for Sisters of Charity.....	1,200.00
Flooring hospital tents	6,079.00
Flooring other tents	10,250.00
Water-supply system	20,795.00
Miscellaneous expenditures	2,807.08

Total expenditures reported..... 66,222.42

CAMP ALGER, VA.

It having been decided to establish a camp near this city for mobilization of an army corps of volunteers, a tract of land of about 1,400 acres, known as Woodburn Manor, situated about 2 miles from Falls Church, Va., was leased for this purpose, on May 10, 1898, at a rental of \$300 per month. This camp was subsequently designated Camp Alger.

On May 25 a tract of about 25 acres at Dunn Loring Station, on the Southern Railroad, was leased as a site for storehouses, park for wagon trains, etc., for use in connection with Camp Alger, at \$25 per month.

Additional tracts of land in the vicinity of Camp Alger were subsequently leased for use of troops, wells were sunk for water supply, and storehouses erected at Dunn Loring, Va.

The amounts expended for improvements in connection with this camp, as reported, were approximately as follows:

For rents	\$3, 295. 50
For water supply, including sinking of wells, purchase of boilers, pumps, etc	8, 299. 87
For temporary buildings	10, 875. 00
For flooring tents	4, 500. 00
Total	26, 970. 37

When the first regiments arrived at the camp they used little streams and farm wells for water, which were insufficient for even culinary purposes, were of inferior if not dangerous quality, and were rapidly drying up. After the success of an experimental well, the supply of water from driven wells was determined upon, and as many plants as possible (five in all) were put to work and a good supply of water obtained, at an expense of \$8,299.87. The large number of wells which were driven was due to the movement of regiments from their camps to new ones for other reasons than water supply. The wells ran in depth from 50 to 150 feet. There were made, in all, 40 wells.

On July 8, the crowded condition of Camp Alger rendering it necessary, as an emergency, the Chittenden farm, near Dunn Loring, was engaged but on account of slowness in finding deep well water the place was not occupied until July 17, when the First Division began to move to new camps.

This camp having been abandoned, the Secretary of War, on September 27, 1898, authorized the sale of the storehouses at Dunn Loring Station.

ST. ASAPH DEPOT, VA.

The St. Asaph's race track, between Alexandria and Washington, on the Pennsylvania Railroad, about 30 acres of land, including stable room and storehouse, was leased May 16, 1898, at \$200 per month, for use as a depot for horses, mules, wagons, etc.

On September 21, 1898, \$875 was allotted for the erection of a forage storehouse at this point.

CAMP POLAND, TENN.

This camp is located near Knoxville, Tenn., and but few expenditures have been authorized or called for.

On June 11, 1898, authority was given for the hire of necessary storage room, at \$30 per month.

On September 8, for the hire of necessary rooms for paymasters, there was authorized \$60.

On September 19, hire of rooms for division headquarters, at \$15 per month, was authorized.

HUNTSVILLE, ALA.

A camp was established here the latter part of August, 1898. On August 26, Major-General Coppinger reported that water pipes had been laid and water connections made for all troops then in camp. On September 26, over 13,000 feet of water pipe which had been in use at Tampa was ordered to be shipped to this camp.

Orders were given to floor all tents, but the cost has not yet been reported. An office for the subsistence department was hired, at \$50 per month. Quartermaster's and subsistence storehouses were built, but the authority for and cost of the work are not of record in this office.

ANNISTON, ALA.

A camp was also established at this point in the latter part of August. Tents were floored at a cost of \$3,074 50, and a quartermaster's and subsistence storehouse and office were hired at \$50 per month.

CAMP AT JACKSONVILLE, FLA.

On June 11, 1898, the hire of a subsistence storehouse at this camp was authorized, at \$150 per month, and subsequently additional space was rented for same; amounting in all to \$300 per month. A quartermaster's storehouse was hired, at \$60 per month; offices for the Subsistence Department, at \$20 per month; and for the Quartermaster's Department, at \$25 per month.

Grounds and buildings for corral were also leased, at \$125 per month.

The total amount paid for rent to August 15, 1898, was \$783.00

For camp improvements allotments have been made to September 30, 1898, as follows:

For construction of 3 pavilion hospitals	4,500.00
Mess room for hospital nurses and employees	800.00
Flooring in hospital tents	522.00
Pasteurizing milk plant	150.00
Garbage barrels	400.00

Total 7,155.00

So far as known, all arrangements for water supply were made by local officers; no specific authorization was made in this office.

MIAMI, FLA.

A camp of six regiments was established here about June 30, 1898, and the location was reported healthful, and the water supply and other camp requirements satisfactory.

On July 14, 1898, the quartermaster at this camp reported to this office that the East Coast Railroad Company had arranged to build a depot for commissary stores for this camp.

The following expenditures were authorized:

Flooring tents	\$250.00
Flooring for hospital tents	176.67

Total 426.67

CAMP WIKOFF, LONG ISLAND, NEW YORK.

On August 2, 1898, the Secretary of War authorized the following expenditures for the establishment of a camp at Montauk Point:

Rent of land to December 1, 1898 (or to June 1, 1899, \$15,000).....	\$10,000.00
Driving piles at dock.....	2,000.00
Water supply.....	12,000.00
Privies, warehouses, bakeries, etc.....	16,000.00
Total.....	40,000.00

Under this authority steps were taken to prepare the camp for the reception of troops with the greatest possible expedition. Officers of the Quartermaster's Department, with expert assistants, were sent to the camp to supervise the work.

Contract was made immediately for a large quantity of wrought-iron pipe, tanks, and pumps, and for sinking wells for water supply; and lumber was ordered for temporary buildings, etc. Pump houses were built. A large storehouse, each, was erected for the quartermaster's and subsistence departments. The two docks were repaired to receive the troops and stores. A temporary general hospital and a detention hospital were constructed.

On August 12 \$4,500 was allotted for the construction of a steam-laundry plant for the hospital.

The tract of land rented contained about 5,000 acres, and this lease included the right to use the existing docks of the Montauk Company on Fort Pond Bay. By General Order No. 120, Adjutant General's Office, the camp was designated Camp Wikoff.

On August 15, 1898, Colonel Hecker reported that water was being pumped at the rate of 250,000 gallons of well water and 200,000 gallons of pond water per day, and that arrangements were then being made for sinking another large well, and pipes were being laid to same, so that each command would have running water.

To insure a supply of good water, on August 30, 1898, \$7,000 was allotted for a filter plant, and during the month of August 165 Pasteur army filters were also furnished.

On September 21 the Surgeon-General reported as follows in regard to the water supply and sanitary conditions at this camp:

The Fort Pond water is unfit for use as a potable water. The other samples are organically pure.

With this satisfactory water supply and the good sanitary condition prevailing in the regimental camps, I have no hesitancy in saying that the troops could stay on their present ground in winter quarters without such outbreak of typhoid fever as has occurred at Camp Alger and at Chickamauga Park.

Payment of certified accounts for material and labor in construction and preparation of the camp, amounting to \$33,665.11 has been authorized. Other accounts have been received for material and labor furnished for temporary buildings, water supply, tent flooring, etc. (including \$5,000 for sinking three wells), on which final action has not yet been taken by this office.

CAMP GEORGE G. MEADE.

On August 12, 1898, the Government took possession of a portion of the land known as the Young farms, near Middletown, Pa., as a camp for troops, which was afterwards designated Camp George G. Meade.

A suitable spur track and siding were laid by the Pennsylvania Railroad Company, which was authorized by the Secretary of War to

build a temporary storehouse and sink two or more wells, in addition to the artesian well already sunk and in operation, fitting them with the necessary water tanks and pumps and placing water pipe throughout the grounds for supply to troops, all work to be paid for at actual cost.

Under the authority above noted a large storehouse was erected at this camp by the railroad company, at a cost of \$7,357.08
 In addition thereto, the Quartermaster's Department erected storehouses, at a cost of 4,060.00
 The railroad company also constructed the necessary water-supply system, consisting of three wells, with two deep-well pumps and one force pump, and two 36,000-gallon water tanks, and laid the necessary pipes, at a cost (actual) of 12,229.97
 On September 20, 1898, the chief quartermaster reported that this system, supplemented by the extension of the pipes authorized by the Secretary of War on the 10th of September, was supplying an abundance of good water. The authorized expenditure for this extension was 16,000.00

In addition to the amounts above recorded there have been expended:

For flooring tents	6,750.00
For constructing post-office building	400.00
For water barrels and buckets	985.00
For miscellaneous purposes	225.00
Total, so far as reported, to September 30, 1898	48,007.05

CAMP HAMILTON, KY.

This camp is situated near Lexington, Ky., and was established early in August, 1898.

The records of this office show that authority has been given for rent of land and camp improvements, as follows:

Rent of paddock	\$150.00
Rent of land for hospital (40 acres, for ninety days).....	240.00
Rent of isolation camp	3,000.00
Digging sinks	875.00
Temporary storehouses	2,451.00
Installation of hospital	575.00
Laying pipes for water supply from city mains, etc.....	3,450.00
Temporary storehouses	3,821.00
Pavilion for nurses, cook houses, sinks, etc.....	3,000.00
Purchase of lumber and nails and miscellaneous expenditures	4,650.00
Total	22,212.00

GENERAL HOSPITALS.

At Key West, Fla., five buildings were rented in the latter part of April, 1898, for general hospital, at the rate of \$135 per month. Office and storeroom were also hired, at \$35 per month.

Total rent paid to August 15, 1898	\$456.00
Temporary buildings were constructed for kitchens, dining rooms, water-closets, ice supply, stable, etc., and tents were floored in connection with this hospital, at a total cost of	5,975.32
Electric wiring, ranges, etc., were provided for same, at an approximate cost of	500.48

Following amounts were authorized for additional water-supply system, for the hospital and the post of Key West Barracks:

Distilling plant.....	\$8, 875. 50
Shelter for same	2, 000. 00
Two tanks for same.....	625. 00
Laying pipes for same	700. 00
Miscellaneous.....	1, 549. 97
	<hr/>
	13, 750. 47
Total.....	<hr/>
	20, 682. 25

Instructions have recently been given to make necessary repairs to buildings and grounds of the convent, to restore same to the condition in which they were before being occupied by the Government for hospital purposes.

At Fort McPherson, Ga., many of the post buildings have been used for a general hospital.

Allotments were made by this office for flooring tents, water supply, sewer connections, erection of kitchens and sinks, plumbing, screen doors and windows, and board walks in connection therewith, at a cost, so far as reported to this office, of \$1,182.74.

At Fort Myer, Va., the drill hall and two barracks have been used as a general hospital, and a blacksmith shop was converted into a kitchen for same.

A deadhouse was constructed, additional plumbing provided in the buildings, temporary floor placed in the drill hall and other conveniences provided for the comfort of the patients, at an approximate cost of \$5,983.

At Fort Thomas, Ky., three sets of barracks have been used as a general hospital.

Plumbing, gas, water, and sewer connections authorized for same.....	\$437. 43
Authorized for flooring tents.....	50. 00
Authorized for cremator.....	2, 000. 00
	<hr/>
Total.....	2, 487. 43

GENERAL HOSPITALS AT FORT MONROE, VA.

On July 3, 1898, instructions were given for the erection of tents and temporary buildings on the Fort Monroe Reservation for a general hospital to accommodate 500 patients and 100 attendants. The work was completed July 23, 1898, the cost (exclusive of tents) being as follows:

Mess hall	\$2, 975. 99
Bath house	510. 26
Water-closets.....	171. 00
Tent floors.....	850. 00
Walks.....	87. 00
Water and sewer connections.....	241. 87
Electric mains and fixtures.....	180. 00
	<hr/>
Total.....	5, 016. 12

On July 20, 1898, the Secretary of War authorized the necessary expenditures for the establishment near Fort Monroe of a pavilion hospital of 1,000 beds.

A tract of land on the line of an electric railway, about 2 miles from the post, was leased at the rate of \$500 per annum, and on this

site the buildings and improvements specified below are in course of completion, the cost to September 30, 1898, being as follows:

Main buildings	\$40,500.00
Covered way	4,000.00
Plumbing and water and sewer systems	17,283.00
Electric lighting system	1,592.00
Laundry machinery	2,370.00
Side tracks, etc	1,287.00
Roads	640.00
Quarters for female nurses and medical officers	14,700.00
Plumbing same	3,039.00
Electric lighting same	235.00
Garbage cremator	1,456.00
Miscellaneous	3,164.00
Total	90,276.00

For supplying the necessary water, the United States pumping station on Mill Creek has been transferred for exclusive use of this hospital.
Very respectfully,

M. C. MARTIN,

Lieutenant-Colonel, Quartermaster's Department.

The QUARTERMASTER-GENERAL UNITED STATES ARMY,
Washington, D. C.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, October 5, 1898.

GENERAL: I have the honor to submit the annual report of the reservation branch of this office for fiscal year ending June 30, 1898.

This branch, under Special Order No. 187 of 1898, Adjutant-General's Office, is charged with providing water supply, sewerage, light, and heating of military posts, camps, and stations; collection and filing of complete title papers, and information pertaining to all lands under charge of the War Department purchased or appropriated for army or other military use, except when designed for permanent military fortifications or for arsenals, etc.

It also has charge of all correspondence and papers in connection with fire protection, post and reservation maps, surveys, topography, and other miscellaneous subjects.

Under terms of act approved July 8, 1886, General Orders, No. 52, of 1886, the grounds comprising Old Fort Brady, Mich., authorized to be sold, were duly platted, appraised, etc., and under public advertisement the buildings and fencing were disposed of at auction in October, 1893, for the sum of \$2,072.50.

Forty-five lots have thus far under the act been sold at public and private sale (at not less than appraised value), total amount realized being \$39,100, which sum (less cost attending sales) has been deposited in the Treasury.

The remaining 19 unsold lots are in charge of the quartermaster, Fort Brady, Mich., to whom application for purchase is made.

On August 25, 1897, the Secretary of War leased for five years from September 7, 1897, at nominal consideration the "cemetery lot" to the Soo Light Guards, Company G, Fifth Regiment, Michigan National Guard, for the erection thereon of an armory and for drill purposes.

Under act approved March 1, 1890, the military reservation of Old

Fort Bliss, Tex., was platted, appraised, and advertised for sale at public auction July 3, 1895.

At that sale lots Nos. 5, 6, 21, 22, 24, and 25 were disposed of, amount realized being \$2,570; lots 1, 2, 3, 4, 12, and 13 have since been disposed of at private sale at appraised valuation, amounting to \$4,828; total realized \$7,398, which sum, less expenses attending sales, has been deposited in the Treasury.

March 9, 1897, Secretary of War executed an agreement giving James R. Harper, county judge, as agent for and on behalf of the county of El Paso, Tex., option, etc., to purchase within one year from date lot 18, with appurtenances thereon at appraised valuation of \$2,920.

If not so purchased within the year, then the county was to pay an annual rental of \$150 to the quartermaster at the new post, and deliver up the property in as good condition as at time of execution of agreement.

Pending legislation looking to transfer of the property to the county, and payment of the \$150 having been made to the quartermaster, Fort Bliss, Tex., and duly deposited to credit of United States Treasurer, on request of county for renewal of option, etc., for another year, the same was granted by the Secretary of War March 9, 1898.

Remaining lots are in charge of the quartermaster at New Fort Bliss for disposal.

The act of August 9, 1894, provides that when this reservation shall have been sold, "so much of the receipts therefrom as may be necessary, not to exceed \$4,000, are hereby appropriated to the construction of a military road between the city of El Paso and New Fort Bliss, said money to be expended under the direction of the Secretary of War."

Owing to many hindrances it was not until December 8, 1897, that a contract for the road was finally made, consideration being \$3,339.35, to which should be added cost of printing and advertising, \$4.82, making \$3,344.17. Other work having been found actually necessary for safe travel, etc., over the road, there was allotted, April 7, 1898, \$632.60, making total cost, \$3,976.77.

In sundry civil act approved March 2, 1895, General Order No. 13, of 1895, the following appears:

The Secretary of War is hereby authorized within his discretion to establish a military post at such point on Puget Sound as shall, in his judgment, best subserve the public interests, provided that 640 acres of land suitable for the purpose shall be donated free of cost to the United States, or such greater quantity of land as in the opinion of the Secretary of War shall be necessary for the purpose.

Citizens of Seattle, representing the Chamber of Commerce, after much patient labor and expense, having finally succeeded in tendering a site acceptable to the War Department, including certain tide lands and right of way for wharf convenience, and United States title thereto having been favorably reported upon by Department of Justice, the work of clearing and grading certain portions of the ground was duly commenced and building operations have since followed.

Sundry civil act of March 2, 1895, General Order No. 13, of 1895, authorizes the Secretary of War, within his discretion, to establish a military post at or near the city of Bismarck, N. Dak., provided a sufficient quantity of suitable land, not less than 640 acres, be donated free of cost to the United States, and further by sundry civil act approved June 11, 1896, \$40,000 is appropriated "for beginning the construction of permanent buildings," etc.

No site in every way acceptable to the Department having thus far been tendered, no portion of the \$40,000 referred to was used, the Treasury having held that the appropriation was but an annual one, good only for use during the fiscal year to which it pertained.

In sundry civil act July 1, 1898, the following appears:

That the appropriation of \$40,000 for beginning the construction of buildings, providing for sewerage, water supply, roads, and other means of communication, and other necessary improvements at the military post at Bismarck, N. Dak., made by sundry civil appropriation act approved June 11, 1896, is hereby reappropriated and made available for the same purpose for the fiscal year 1899.

Act approved July 23, 1888, General Order No. 60, of 1888, authorizes the Secretary of War, after purchase of site and construction of new post (now known as Fort Crook, Nebr.), to sell the military reservation known as Fort Omaha.

The new post has been built, but owing to business depression, etc., of recent years, no definite steps have been taken with view to disposing of this valuable land, comprising about 80 acres.

Sundry civil act approved June 11, 1896, provides "for the purchase of land for a target range for the use of troops stationed at Jefferson Barracks, Mo., \$18,000: *Provided*, That any land purchased hereunder shall be unencumbered by any private or public ways or roads," and by sundry civil act approved June 4, 1897, the \$18,000 above referred to is "made available for expenditure during the fiscal year 1898." Deficiency act approved July 7, 1898, General Order No. 104, of 1898, page 35, further provides—

* * * That the appropriation of \$18,000 made for the purchase of land for a target range for the use of troops stationed at Jefferson Barracks, Mo., is hereby continued and made available for expenditure during the fiscal year 1899: *Provided*, That any land purchased thereunder shall be unencumbered by any private or public ways or roads.

Under orders of the Acting Secretary of War, certain desirable lands in sections 2, 3, 10, 11, and 15, township 33, range 4, aggregating some 1,100 acres, have been secured within the appropriation, United States title thereto having been favorably reported on by Department of Justice.

General Orders, Adjutant-General's Office, affecting military reservations, etc., issued during the year, are as follows:

General Order No. 54, of 1897, publishes President's order of August 21, 1897, setting apart certain lands in State of Florida "for the future military and naval defense of Pensacola Harbor."

General Order No. 59, of 1897, publishes President's order of October 20, 1897, declaring military reservation of Fort St. Michael, Alaska.

General Order No. 61, of 1897, publishes President's order of November 4, 1897, transferring the wood and timber reservation of Fort Laramie, Wyo., to the Interior Department.

General Order No. 66, of 1897, publishes President's order of November 24, 1897, directing that the two batteries of 10-inch guns on Staten Island, near Fort Wadsworth, shall be known as Fort Newton.

General Order No. 72, of 1897, announces that new fort on Delaware River at Finns Point, New Jersey, will be known as Fort Mott.

General Order No. 7, of 1898, publishes changes in territorial limits, designation and headquarters of geographical departments.

General Order No. 14, of 1898, announces that the posts of Whipple Barracks, Ariz., and Fort Missoula, Mont., will be discontinued.

General Order No. 17, of 1898, publishes President's order of March 12, 1898, designating new battery on Sullivan's Island, South Carolina, as Battery Sergeant Jasper.

General Order No. 18, of 1898, publishes President's action of April 18, 1898, modifying his order of March 12, 1898, in so far as to direct that the new battery "will hereafter be known and designated as Battery Jasper."

General Order No. 59, of 1898, Secretary of War, by direction of the President, announces that the post at Dutch Island, Narragansett Bay, Rhode Island, shall hereafter be known and designated as Fort Greble.

Custodians are employed and paid by the Quartermaster's Department in caring for the following reservations:

Old Fort Bliss, Tex., Frank E. Tusten, \$60 per month.

Madison Barracks Target Range, New York, James Fleming, \$15 per month.

Fort Omaha, Nebr., Jerry Howard and S. T. Cole, \$45 per month each.

At Fort Townsend, Wash., J. W. Brown; at Fort Davis, Tex., J. L. Janes; at Monterey, Cal., Francis Doud; at Fort Custer, Mont., H. C. Bullard and S. Harris, serve without money compensation.

The authorized expenditures at the various posts and camps for the fiscal year for water, sewer, plumbing, and drainage work amounted to \$298,175.60.

For structural lighting, heating, and steam-cooking apparatus, \$103,956.18.

After the commencement of hostilities with Spain the question of furnishing pure water to the troops in the field, by means of an efficient "field filter," which could be readily transported with the troops, was the subject of early and careful consideration.

Such pattern of filter was not on the market. After a number of tests, experiments, etc., special patterns of the Berkefeld, Maignen, and the Pasteur-Chamberland were adopted, and 1,000 of each, on recommendation of the Surgeon-General, approved by the Secretary of War, were purchased at a total cost of \$69,100.

These were distributed as follows:

Station.	Berkefeld.	Maignen.	Pasteur.
Camp Alger, Va.....	107	107	.....
Chickamauga, Ga.....	602	602	.....
Fernandina, Fla.....	.....	.....	100
Jacksonville, Fla.....	.....	.....	150
Miami, Fla.....	.....	.....	85
Middletown, Pa.....	191	191	160
Montauk Point, N. Y.....	.....	.....	165
Philippine Islands.....	100	100	200
Porto Rico.....	.....	.....	200
Total.....	1,000	1,000	1,000

The following notes are submitted in connection with the furnishing of water to the troops at various camps:

Camp Alger, Va.—In addition to data furnished in report of the construction and repair division regarding the water supply at this camp, it may be stated that during May and June, 1898, 700 water barrels were also provided. To further assist in supplying the troops with good water, 107 Berkefeld and 107 Maignen army filters of special patterns were furnished in July, 1898, at a cost of \$3,236.75.

Anniston, Ala.—Water is obtained from the city mains; it is piped from mountain springs. Quality said to be absolutely pure. Arrange-

ments made by local officers. No detailed report covering character, extent, and cost of the work yet rendered to this office.

Chickamauga, Camp Thomas, Ga.—In addition to data furnished in report of the construction and repair division, the following expenditures are noted:

August 4, 100 water barrels.....	\$175
August 6, 450 water barrels.....	1,080
August 12, 600 water barrels.....	1,440
August 6, 500 boilers for boiling water.....	500
August 8, 1,500 boilers for boiling water.....	1,500

To assist in furnishing the troops at this camp with good water, 600 Berkefeld and 600 Maignen filters of special pattern were supplied in July, 1898, at a cost of \$18,150.

Fernandina, Fla.—Mains and branches were laid, connected with water supply of the town, which is from an 8-inch artesian well 720 feet deep, with a flow of about 1,250,000 gallons per day. The cost involved in purchasing and laying pipes, \$4,707.

To assist in supplying the troops at this camp with good water 100 Pasteur army filters of special pattern were furnished in August, 1898, at a cost of \$3,885.

Huntsville (Camp Wheeler), Ala.—Arrangements made by local officers. The water is taken from the city supply, which is obtained from a bold spring within the city limits. August 13, 1898, General Coppinger reported, “* * * have ordered water pipe laid to supply troops.” August 15, 1898, General Coppinger further reported, “delighted with * * * water supply.” No detailed report covering description, cost, etc., of work yet rendered to this office.

Jacksonville, Fla.—Water distributed to the camps by the mains and branches connected with city system. Jacksonville source of supply is three 6-inch artesian wells with a natural flow of 3,500,000 gallons per day. To further assist in supplying the troops at this camp with good water, 150 Pasteur army filters of special pattern were furnished in August, 1898, at a cost of \$5,827.50.

Lexington (Camp Hamilton), Ky.—August 23, 1898, chief quartermaster authorized to hire means for hauling water from city hydrant, some 3 miles distant. September 3, 1898, for 10,000 feet 2-inch pipe and connections, for distributing water from city main, there was allotted \$1,250.

Miama, Fla.—July 5, 1898, chief quartermaster reported, “men at this camp are not suffering for water; water supply abundant; hydrants and wells throughout entire camp.” To further assist in giving the troops at this camp pure water, 85 Pasteur army filters of special pattern were supplied in July, 1898, at a cost of \$3,302.25.

Middletown (Camp Meade), Pa.—In addition to data furnished in report of construction and repair division, it may be stated that to further assist in supplying the troops at this camp with good water, 191 Berkefeld, 191 Maignen, and 100 Pasteur army filters of special patterns were furnished in August, 1898, at a cost of \$9,662.75.

Montauk (Camp Wikoff), N. Y.—In addition to data furnished in report of construction and repair division, it may be stated that on September 1, 1898, the Secretary of War accepted offer of Navy Department for free use of steamer *Iris*, with distilled water plant of 60,000 gallons capacity, for use of troops at this camp.

New Orleans, camp at.—Free use of all water given by Orleans City Railroad Company, including filter.

Tampa, Fla.—For camp purposes, purchased under direction of depot quartermaster: May 24, 1898, for regulating supply, 1 Crown meter authorized, \$250. May 22, 1898, for establishing a water plant at St. Petersburg for vessel use there was allotted \$5,500.

At certain State camps—Augusta, Ga., Camp Black, N. Y., Carson City, Nev., Camp Townsend, N. Y., etc.—some few minor expenditures on water and sewer account were duly authorized.

For distilling plant at Key West Barracks there was allotted \$12,000. For Fort St. Philip, La., \$1,200. For Philippine Islands, including machinery for taking water from tower to a higher level and providing larger camps with water from one or more sources of supply, \$20,000. For use of troops destined for Cuba 50 drive-well outfits were purchased and shipped from New York at a cost of \$1,475.

Very respectfully,

F. G. HODGSON,

Lieutenant-Colonel, Quartermaster, U. S. Volunteers.

The QUARTERMASTER-GENERAL,

Washington, D. C.

WAR DEPARTMENT,

QUARTERMASTER-GENERAL'S OFFICE,

Washington, September 15, 1898.

GENERAL: I have the honor to submit a report for the fiscal year ending June 30, 1898, concerning that portion of the work of this office which has been specially assigned to my charge.

It consists principally of such matters as relate to the personnel of the officers of the Quartermaster's Department, both regular and volunteer, the preparation and filing of their official bonds, and assignment to duty; the examination, appointment, and assignment to stations of post quartermaster-sergeants, and all matters relating to the detachment of Army service men, quartermaster's department at West Point, N. Y.; the preparation of the annual, biennial, and various other reports and returns; also all matters pertaining to the employment of the many different classes of civilian employees required in the Quartermaster's Department at large, including those governed by the civil-service rules.

In view of the war with Spain, reference will be made in this report to all important transactions on the above-mentioned topics from July 1, 1898, to the close of hostilities, August 12, 1898.

The passage of the act of Congress, approved March 2, 1898, providing a large appropriation for the national defense, was the beginning of the increase in all branches of work pertaining to this office, and from April 21, 1898, the date of the declaration of war with Spain, to the close of hostilities, the volume of this work grew to large proportions.

The act of Congress approved April 22, 1898, for temporarily increasing the military establishment of the United States in time of war, provided for the organization of the troops in the United States, whether belonging to the Regular or Volunteer Army, as far as practicable, into corps of three divisions each, divisions of three brigades each, and brigades of three or more regiments each. For each corps the law provided a chief quartermaster, with the rank of lieutenant-colonel; for each division a chief quartermaster, with the rank of major; and for each brigade an assistant quartermaster, with the rank of captain.

In accordance with this law, 7 lieutenant-colonels and corps quartermasters, 22 majors and division quartermasters, and 65 captains and brigade quartermasters were appointed.

Congress, by act approved July 7, 1898, to increase the efficiency of the Quartermaster's Department, provided as follows:

That during the existing war and for a period not exceeding one year thereafter, the Secretary of War may make such distribution of the duties and labors of the Quartermaster's Department as may be deemed for the best interests of the service, and may assign a suitable officer in charge of each of such divisions, and may assign to duty as special inspectors of the Quartermaster's Department not exceeding four officers, to be selected from the regular and volunteer officers of the Department; and such officers, and the quartermaster on the staff of the Commanding General of the Army, while so acting shall have the rank next above that held by them and not above colonel.

SEC. 2. That the President may nominate and, by and with the advice and consent of the Senate, may appoint two quartermasters of volunteers with the rank of colonel, two quartermasters of volunteers with the rank of lieutenant-colonel, three quartermasters of volunteers with the rank of major, and twenty assistant quartermasters of volunteers with the rank of captain, and the Secretary of War may assign an officer of the Quartermaster's Department in charge of each principal depot of the Quartermaster's Department, not exceeding twelve, to be selected from the regular and volunteer officers of the Quartermaster's Department; and such officers while so acting shall have the rank next above that held by them and not above colonel, and the four principal assistants of the Quartermaster-General while so acting shall have the rank of colonel. The Secretary of War may assign such of the said volunteer quartermasters as may be deemed necessary to duty in the office of the Quartermaster-General, at the various supply depots, or on other important and special work, and may continue such assignments for a period not exceeding one year after the close of the war, then to be discharged.

Under the last mentioned law 2 quartermasters with the rank of colonel, 2 quartermasters with the rank of lieutenant-colonel, 3 quartermasters with the rank of major, and 20 assistant quartermasters with the rank of captain, were appointed, making in all 2 colonels, 9 lieutenant-colonels, 25 majors, and 86 captains; or a total of 122 volunteer officers appointed in the Quartermaster's Department. Of this number, appointments were made from the officers of the Regular Army, and from civil life, as follows:

Rank.	United States Army.		Civil life.	Total.
	Quartermaster's Department.	Line.		
Colonels	1	.....	1	2
Lieutenant-colonels	7	1	1	9
Majors	14	5	6	25
Captains .....	.....	16	70	86
Total	22	22	78	122

It will thus be seen that 22 officers of the regular establishment of this Department received volunteer commissions as quartermasters, thus reducing the number of additional quartermasters actually available for duty in this department, under the volunteer act, to 99. This latter number includes 22 officers appointed to volunteer commissions from the line of the Regular Army.

The sudden bringing into the service of so many volunteer quartermasters, of whom a large number had no previous training in the Quartermaster's Department, and, therefore, were without any practical knowledge or experience in the varied and extensive work pertaining to this department, made it necessary and important that all

possible care and attention be given these officers at the outset in the way of preliminary instructions. Every assistance was afforded in this direction, but the urgency for the service of these officers in the field would allow but a brief period for this purpose.

Notwithstanding the inexperience of many of these volunteer quartermasters in military affairs, and their lack of knowledge as to the intricate duties which would be required of them in this department, a number of these officers very soon adapted themselves energetically to the duties with which they were charged, and performed very efficient and satisfactory service.

The officers of this department belonging to the regular establishment at close of fiscal year consisted of 57 officers in all, viz, 1 brigadier-general, 4 colonels, 8 lieutenant-colonels, 14 majors, and 30 captains. Of these, as before stated, 22 were given volunteer commissions in this department, which the law allowed them to accept without in any way interfering with their commissions in the Regular Army. The demand for the regular and experienced quartermasters for service with troops in the field was, from the beginning to the close of hostilities, far in excess of the number that could be spared for that purpose.

It has been the constant study and aim of this office to so arrange and assign the officers of this department, both regular and volunteer, as to maintain the very highest efficiency at the points of service where it was most urgently required.

ORGANIZATION—QUARTERMASTER-GENERAL'S OFFICE.

Under the act approved July 7, 1898, above referred to, the following distribution of labor in the office of the Quartermaster-General was made and officers assigned to the respective duties, as indicated below:

Col. James M. Moore, Assistant Quartermaster-General, U. S. A., principal assistant of the Quartermaster-General, in charge of all matters relating to finance, money accounts, returns for quartermasters supplies, mail and record, and national cemeteries.

Lieut. Col. James L. Botsford, quartermaster, U. S. Volunteers, assistant to Colonel Moore in matters relating to national cemeteries.

Col. Frank J. Hecker, quartermaster, U. S. Volunteers, chief of division of transportation, including rail and water transportation.

Col. Charles Bird, quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), deputy chief of division of transportation.

Col. W. S. Patten, quartermaster (major and quartermaster, U. S. A.), principal assistant of the Quartermaster-General, in charge of all matters relating to clothing, camp and garrison equipage, and while so acting to rank as colonel.

Col. C. P. Miller, quartermaster (major and quartermaster, U. S. A.), principal assistant of the Quartermaster-General, in charge of all wagon transportation, the purchase of all cavalry and artillery horses, draft and pack animals, regular supplies, etc., and while so acting to rank as colonel.

Lieut. Col. Medad C. Martin, major and quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), in charge of the hire, purchase, or construction of barracks, quarters, hospitals, store-houses, stables, roads, sidewalks, wharves, bridges, and, generally, of all structures furnished by the Quartermaster's Department for the use of the Army, including the repairs thereof, and while so acting to rank as lieutenant-colonel.

Lieut. Col. Frederick G. Hodgson, major and quartermaster, U. S.

Volunteers (captain and assistant quartermaster, U. S. A.), in charge of water supply, sewerage, lighting, and heating of military posts, camps, and stations; hire of grounds for military purposes; collecting and filing of complete title papers and information pertaining to all land under the charge of the War Department purchased or appropriated for Army or other military uses, except when designed for permanent military fortifications, or for armories, arsenals, or ordnance depots, and while so acting to rank as lieutenant-colonel.

Maj. Francis M. Schreiner (captain and assistant quartermaster, U. S. Volunteers), in charge of all matters relating to the personnel of officers of the Quartermaster's Department, both regular and volunteer; post quartermaster-sergeants, and civilian employees of the Quartermaster's Department-at-Large, etc., and while so acting to rank as major.

Maj. J. Z. Dare (captain and assistant quartermaster, U. S. Volunteers), in charge of miscellaneous war claims growing out of the war with Spain, etc., and while so acting to rank as major.

Under the provisions of the same law, the following other assignments were made:

PRINCIPAL DEPOTS (NOT EXCEEDING TWELVE).

Col. Amos S. Kimball (lieutenant-colonel and deputy quartermaster-general, U. S. A.), in charge of principal quartermaster's depot, New York City, and while so acting to rank as colonel.

Col. G. C. Smith (lieutenant-colonel and deputy quartermaster-general, U. S. A.), in charge of principal quartermaster's depot, St. Louis, Mo., and while so acting to rank as colonel.

Col. John V. Furey (lieutenant-colonel and deputy quartermaster-general, U. S. A.), in charge of principal quartermaster's depot, Philadelphia, Pa., and while so acting to rank as colonel.

Col. Charles W. Williams (lieutenant-colonel and deputy quartermaster-general, U. S. A.), in charge of principal quartermaster's depot, Jeffersonville, Ind., and while so acting to rank as colonel.

Lieut. Col. John W. Pullman (major and quartermaster, U. S. A.), in charge of principal quartermaster's depot, Porto Rico, and while so acting to rank as lieutenant-colonel.

Lieut. Col. George Rublen, major and chief quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), in charge of principal quartermaster's depot, Honolulu, and while so acting to rank as lieutenant-colonel.

Lieut. Col. O. F. Long, major and chief quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), in charge of principal quartermaster's depot, San Francisco, Cal., and while so acting to rank as lieutenant-colonel.

Lieut. Col. J. B. Bellinger, major and quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), in charge of principal quartermaster's depot, Tampa, Fla., and while so acting to rank as lieutenant-colonel.

Maj. Theodore E. True (captain and assistant quartermaster, U. S. A.), in charge of principal quartermaster's depot, Washington, D. C., and while so acting to rank as major.

Maj. John McE. Hyde (captain and assistant quartermaster, U. S. A.), in charge of principal quartermaster's depot, Boston, Mass., and while so acting to rank as major.

Maj. John T. Knight (captain and assistant quartermaster, U. S. A.), in charge of the principal quartermaster's depot, Santiago, Cuba, and while so acting to rank as major.

SPECIAL INSPECTORS—QUARTERMASTER'S DEPARTMENT (NOT EXCEEDING FOUR).

Col. D. D. Wheeler, lieutenant-colonel and chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), assigned to duty as special inspector of the Quartermaster's Department, and while so acting to rank as colonel.

Lieut. Col. F. H. Hathaway (major and quartermaster, U. S. A.), assigned to duty as special inspector of the Quartermaster's Department, and while so acting to rank as lieutenant-colonel.

PRINCIPAL FIELD ASSIGNMENTS WITH TROOPS.

Col. J. G. O. Lee, assistant quartermaster-general, U. S. A. Chief quartermaster on duty with troops at Chickamauga Park, Ga., comprising the First, Third, and Sixth Army Corps, Gen. John Brooks, commanding.

Maj. John M. Carson, jr., chief quartermaster volunteers (captain and assistant quartermaster, U. S. A.), acting chief quartermaster, First Army Corps, Chickamauga Park, Ga., and later Porto Rico.

Lieut. Col. Guy Howard, chief quartermaster volunteers (captain and assistant quartermaster, U. S. A.), chief quartermaster, Second Army Corps, Camp Alger, Va., and later Camp Meade, Pa.

Lieut. Col. D. D. Wheeler, chief quartermaster volunteers (major and quartermaster, U. S. A.), chief quartermaster, Third Army Corps, Chickamauga Park, Ga., and now colonel and special inspector, Quartermaster's department.

Lieut. Col. Charles G. Penney, chief quartermaster volunteers (captain, Sixth Infantry, U. S. A.), chief quartermaster, Fourth Army Corps, Tampa, Fla., and later Huntsville, Ala.

Maj. Leon S. Roudiez, quartermaster volunteers (first lieutenant, First Infantry, U. S. A.), acting chief quartermaster, Fifth Army Corps, Santiago, Cuba, and later Montauk Point, N. Y.

Lieut. Col. George E. Pond, chief quartermaster volunteers (major and quartermaster, U. S. A.), chief quartermaster, Seventh Army Corps, Jacksonville, Fla.

Lieut. Col. James W. Pope, chief quartermaster volunteers (major and quartermaster, U. S. A.), chief quartermaster, Eighth Army Corps, at Philippines.

ASSIGNMENTS ON QUARTERMASTER'S TRANSPORTS.

The transport service of this department, for the transportation of troops and supplies by sea, assumed large proportions very soon after actual hostilities began. It became necessary and important, in order that this service be made efficient, to assign an officer of the Army on each of the transports which were purchased and used by the Government for this special service. The officers so assigned were, as a rule, volunteer quartermasters, who acted for both the Quartermaster's and Subsistence Departments, their principal duties being to take charge of their respective transports, and assume responsibility for quarter-

master's and subsistence supplies thereon; hire, pay, and victual the crew and other civilian employees of this department employed on the vessel. A sum not exceeding 75 cents per day for each quartermaster's employee on the transport was allowed for subsistence in addition to pay, no ration in kind being allowed. The officers in charge of these transports were also required to attend to everything on shipboard that was necessary for the comfort of the officers and troops when traveling thereon.

A list of these transports, with the names of the officers assigned to take charge of them, accompanies this report.

MILITARY STOREKEEPER.

Congress by act approved July 1, 1898, authorized the appointment of a military storekeeper in the Quartermaster's Department of the Army, and under the provisions of this act Capt. Charles D. A. Loeffler was, on July 5, 1898, appointed by the President to said position.

Capt. Edgar S. Dudley, assistant quartermaster, U. S. A., was, on May 9, 1898, commissioned by the President as lieutenant-colonel of volunteers in the Judge-Advocate-General's Department, and on June 1, 1898, he relinquished his duties in the Quartermaster's Department to assume those under his volunteer commission.

POST QUARTERMASTER-SERGEANTS.

During the fiscal year the 80 post quartermaster-sergeants provided by law performed their duties very satisfactorily.

At the beginning of hostilities it became apparent that an increase in the number of these sergeants would have to be made if the requirements of the service were to be properly met. Accordingly Congress, by act approved July 8, 1898, provided for the appointment of 25 additional post quartermaster-sergeants, and as rapidly as capable and suitable sergeants could be selected appointments were made, so that at the present time there are 98 of these sergeants in the service, who are distributed where their services are most urgently needed.

DETACHMENT OF ARMY SERVICE, QUARTERMASTER'S DEPARTMENT, WEST POINT, N. Y.

Maj. William F. Spurgin, Twenty-third United States Infantry, commanding this detachment, reports in reference thereto as follows:

Number of men in detachment July 1, 1897	112
Number of men transferred or discharged during fiscal year ending June 30, 1898.	43
	<hr/>
	69
Number of men enlisted in and transferred to detachment during fiscal year ending June 30, 1898.....	56
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Total	125

On November 18, 1897, the honorable the Secretary of War, under the provisions of act approved February 10, 1897, authorized the increase of the number to be enlisted in this detachment from 116 to 125.

Major Spurgin further reports that the members of this detachment are assigned to the following duties: Six as clerks in quartermaster's and adjutant's offices, 29 as mechanics, 29 as teamsters, 37 as laborers, 6 as janitors, 4 as printers, 5 in academic departments, 1 as gas fitter,

1 as cadets' bugler, 2 as bakers, 2 in subsistence department, 2 as messengers, 1 as mail carrier; total, 125.

First sergeants	1
Sergeants	6
Corporals	7
Privates	111
Total	125

CIVILIAN EMPLOYEES, QUARTERMASTER'S DEPARTMENT AT LARGE.

To enable the Quartermaster's Department to perform its proper and important functions in connection with the operations of a large army in the field, it is very essential that an ample force of capable civilian assistants be employed by this Department for that purpose. The army would soon lose a large percentage of its effective force if the army wagon supply trains required by such an army were not provided with the complement of employees. Capable wagon and forage masters and teamsters are necessary to keep such trains in a proper state of efficiency; wheelwrights must be employed to repair the means of transportation; saddlers are needed constantly to look after the thousand sets of harness in use; blacksmiths are required to see that the public animals are well shod, and a corps of trained veterinary surgeons must be kept at hand for the treatment and care of all the public animals. In fact, a small army of civilian quartermaster's employees are absolutely necessary to an army in the field if that army is to have its actual needs properly and promptly supplied.

The transport service under this Department also requires a large number of expert employees, such as captains, pursers, pilots, engineers, stevedores, seamen, and various other employees, who must be selected with great care in order that none but capable and efficient men are employed. This service especially is very largely dependent upon the capacity and efficiency of the persons hired for duty in connection therewith.

The principal depots and purchasing stations of the Quartermaster's Department are also places where a large amount of important public business is transacted; especially is this the case in time of war, and to keep these depots and stations in a high state of efficiency a large number of civilian employees, many of them experts in their respective lines, must be hired.

This subject of employing the necessary civilian quartermaster's employees for duty with the army in the field, on the transports, and at the various principal quartermaster's depots and purchasing stations throughout the country, being one of much importance, was given the most careful study and consideration, and while scrutinizing all applications for employees, in order to prevent any extravagance in the expenditures for this purpose, no interest of the service was permitted to suffer on account of a lack of the necessary assistance in the way of quartermaster's employees. Every proper and reasonable request for such assistance made to this office was promptly supplied.

All employments, however, in the Quartermaster's Department at large, during the war with Spain, have been of a temporary nature, and continued only from time to time as their services seemed absolutely necessary, and, as rapidly as the conditions of the service will permit, steps will be taken to reduce the number of these temporary employees to a basis required by actual needs.

At the beginning of the war many of the regular and experienced civilian clerks of this Department were taken from their permanent stations and sent to the field, where they were required to work from fourteen to sixteen hours a day, Sundays and holidays included, and for their efficiency and devotion to their duties they are entitled to the thanks of this Department and to special consideration. Most, if not all of them, are men of family, and in going to the field they not only suffered inconvenience and hardships, but were also obliged to maintain and meet the expense of their families at home and themselves in the field without any increase in their compensation. These clerks, as well as a number of others who cheerfully rendered most valuable service to this Department at the various stations during the war, should receive some recognition in the way of additional or extra compensation. After the war of the rebellion, Congress, by special act, allowed certain civilian employees of the Government 20 per cent additional compensation over the salaries received, as a just recognition for their extra service, and it would seem just and proper that similar action should be taken on behalf of these experienced employees who have rendered extraordinary service to the Government during the war with Spain. They have, under the most trying circumstances, devoted their energies and special abilities for the public good, serving their country faithfully and well, day and night, and I cheerfully commend them to your most favorable consideration.

Very respectfully,

FRANCIS M. SCHREINER,

Major, Assistant Quartermaster, U. S. Volunteers.

The QUARTERMASTER-GENERAL OF THE ARMY.

List of officers of the Quartermaster's Department (regular establishment) October 1, 1898, showing duty and station.

Name.	Assignment.	
	Duty.	Station.
<i>Brigadier-general.</i>		
Marshal I. Ludington.....	Quartermaster-General	Washington, D. C.
<i>Colonel and assistant quartermaster-general.</i>		
James M. Moore.....	Assistant in office of Quartermaster-General.	Washington, D. C.
James G. C. Lee.....	Chief quartermaster, Department of the Lakes.	Chicago, Ill.
James Gilliss.....	Chief quartermaster, Department of the East.	Governors Island, New York Harbor.
James W. Scully.....	Purchasing, disbursing, etc.....	New Orleans, La.
<i>Lieutenant-colonel and deputy quartermaster-general.</i>		
Amos S. Kimball.....	Depot quartermaster	New York City.
Gilbert C. Smith.....	do	St. Louis, Mo.
John V. Furey.....	do	Philadelphia, Pa.
Edwin B. Atwood.....	Chief quartermaster, Department of the Colorado.	Denver, Colo.
James M. Marshall.....	Chief quartermaster, First United States Army Corps.	Lexington, Ky.
John Simpson.....	Chief quartermaster, Department of the Gulf.	Atlanta, Ga.
Charles F. Humphrey.....	Chief quartermaster on staff of Major-General Commanding the Army.	Washington, D. C.
Charles W. Williams.....	Depot quartermaster	Jeffersonville, Ind.

List of officers of the Quartermaster's Department (regular establishment) October 1, 1898, showing duty and station—Continued.

Name.	Assignment.	
	Duty.	Station.
<i>Major and quartermaster.</i>		
Daniel D. Wheeler.....	Special inspector, Quartermaster's Department.	Washington, D. C.
Charles R. Barnett.....	Assistant to depot quartermaster.	Jeffersonville, Ind.
Charles A. H. McCauley.....	Assistant to depot quartermaster.	Philadelphia, Pa.
F. H. Mathaway.....	Special inspector, Quartermaster's Department.	Do.
Joshua W. Jacobs.....	Chief quartermaster, Department of Santiago.	Santiago, Cuba.
Charles Bird.....	Assistant in office of Quartermaster-General.	Washington, D. C.
John L. Clem.....	Purchasing, disbursing, etc., at Portland, Oreg. Temporarily chief quartermaster, Department of the Columbia.	Vancouver Barracks, Wash.
Charles A. Booth.....	Assistant to depot quartermaster.	St. Louis, Mo.
William S. Patten.....	Assistant in office of Quartermaster-General.	Washington, D. C.
George E. Pond.....	Chief quartermaster, Seventh United States Army Corps.	Jacksonville, Fla.
John W. Pullman.....	Depot quartermaster.	Ponce, Porto Rico.
James W. Pope.....	Chief quartermaster, Eighth United States Army Corps.	Philippine Islands.
Francis B. Jones.....	On duty with War Department Investigating Commission.	Washington, D. C.
Crosby P. Miller.....	Assistant in office of Quartermaster-General.	Do.
<i>Captain and assistant quartermaster.</i>		
John W. Summerhayes.....	Assistant to depot quartermaster.	New York City.
Theodore E. True.....	Depot quartermaster.	Washington, D. C.
J. McE. Hyde.....	do	Boston, Mass.
George Rublen.....	do	Honolulu, Hawaiian Islands
William H. Miller.....	Constructing quartermaster.	Spokane, Wash.
Samuel R. Jones.....	Quartermaster, Eighth United States Army Corps.	Philippine Islands.
William W. Robinson, jr.....	In charge of construction.	Seattle, Wash.
Charles B. Thompson.....	Quartermaster, Presidio, California. Temporarily chief quartermaster, Department of California.	San Francisco, Cal.
Medad C. Martin.....	Assistant in office of Quartermaster-General.	Washington, D. C.
Oscar F. Long.....	Depot quartermaster.	San Francisco, Cal.
E. S. Dudley.....	Detached for duty in Judge-Advocate-General's Department.	
Guy Howard.....	Chief quartermaster, Second United States Army Corps.	Middletown, Pa.
Frederick Von Schrader.....	Depot quartermaster.	Do.
J. Estcourt Sawyer.....	Quartermaster.	Montank Point, N. Y.
Robert R. Stevens.....	do	Fort Sam Houston, Tex.
Frederick G. Hodgson.....	Assistant in office of Quartermaster-General.	Washington, D. C.
John B. Bellinger.....	Depot quartermaster.	Tampa, Fla.
John T. French, jr.....	Acting chief quartermaster, Department of Dakota.	St. Paul, Minn.
James B. Aleahire.....	Special inspector of horses.	Chicago, Ill.
I. W. Little.....	Assistant to depot quartermaster.	New York City.
G. S. Bingham.....	do	Philadelphia, Pa.
C. A. Devol.....	Assistant quartermaster.	Philippine Islands.
Thomas Cruise.....	Chief quartermaster, Third Division, First United States Army Corps.	Lexington, Ky.
Daniel E. McCarthy.....	Assistant quartermaster.	Lytle, Ga.
John T. Knight.....	Depot quartermaster.	Santiago, Cuba.
John M. Carson, jr.....	Acting chief quartermaster, First United States Army Corps.	Guayama, Porto Rico.
Alfred M. Palmer.....	Assistant quartermaster.	Santiago, Cuba.
A. G. C. Quay.....	On sick leave.	
John Baxter, jr.....	Acting chief quartermaster, Department of the Missouri.	Omaha, Nebr.
M. G. Zalinski.....	Quartermaster.	Chickamauga Park, Ga.
<i>Captain and military storekeeper.</i>		
Charles D. A. Loeffler.....	On duty at Executive Mansion.	Washington, D. C.

List of volunteer officers of the Quartermaster's Department, showing whence appointments were made, dates of commissions, and station on October 1, 1898.

Name.	Appointed from Army or civil life.	Date of commission.	Station October 1, 1898.
COLONEL.			
Frank J. Hecker.....	Civil life, Michigan.....	July 8	Quartermaster-General's Office.
Charles Bird.....	Lieutenant-colonel and chief quartermaster, U. S. Volunteers, major and quartermaster, U. S. A.	July 10	Do.
LIEUTENANT-COLONEL.			
Daniel D. Wheeler.....	Major and quartermaster, U. S. A.....	May 9	Washington, D. C.
Francis B. Jones.....	do.....	do	Do.
James W. Pope.....	do.....	do	Manila, Philippine Islands.
George E. Pond.....	do.....	do	Jacksonville, Fla.
Joshua W. Jacobs.....	do.....	Aug. 11	Santiago, Cuba.
Guy Howard.....	Major and quartermaster, U. S. Volunteers; captain and assistant quartermaster, U. S. A.	do	Middletown, Pa.
Charles G. Penney.....	Major and quartermaster, U. S. Volunteers; captain, Sixth Infantry, U. S. A.	do	Huntsville, Ala.
James L. Botsford.....	Civil life, Ohio.....	July 8	Quartermaster-General's Office.
Charles R. Barnett.....	Major and quartermaster, U. S. A.....	July 16	Jeffersonville, Ind.
MAJOR.			
John W. Summerhayes.....	Captain and assistant quartermaster, U. S. A.	May 12	New York City.
Samuel R. Jones.....	do.....	do	Manila, Philippine Islands.
J. Estcourt Sawyer.....	do.....	do	Montauk Point, N. Y.
Frederick Von Schrader.....	do.....	do	Middletown, Pa.
Oscar F. Long.....	do.....	do	San Francisco, Cal.
Medad C. Martin.....	do.....	do	Quartermaster-General's Office.
Thomas Cruse.....	do.....	do	Lexington, Ky.
James B. Aleshire.....	do.....	do	Chicago, Ill.
Frederick G. Hodgson.....	do.....	do	Quartermaster-General's Office.
Eugene F. Ladd.....	First lieutenant, Ninth Cavalry, U. S. A.	do	Middletown, Pa.
William A. Wadsworth.....	Civil life, New York.....	do	Manila, Philippine Islands.
John M. Carson, jr.....	Captain and assistant quartermaster, U. S. A.	May 17	Porto Rico.
Noble H. Creager.....	Civil life, Maryland.....	May 20	Jacksonville, Fla.
George Ruhlen.....	Captain and assistant quartermaster, U. S. A.	June 3	Honolulu, Hawaiian Islands.
Edgar B. Robertson.....	Captain, Ninth Infantry, U. S. A.	do	On leave.
Morris C. Hutchins.....	Civil life, Kentucky.....	June 4	Cincinnati, Ohio.
Charles N. Vernou.....	Captain, Nineteenth Infantry, U. S. A.	June 8	Resigned Sept. 17, 1898.
Otto H. Falk.....	Civil life, Wisconsin.....	do	Anniston, Ala.
David Hemphill.....	Civil life, South Carolina.....	June 9	Knoxville, Tenn.
James L. Wilson.....	Captain, Sixth Artillery, U. S. A.	June 20	S. S. Minnewaska.
William H. Miller.....	Captain and assistant quartermaster, U. S. A.	Aug. 11	Spokane, Wash.
Andrew G. C. Quay.....	do.....	do	On leave.
John B. Bellinger.....	Captain and assistant quartermaster, U. S. A.	July 16	Tampa, Fla.
Leon S. Roudiez.....	First lieutenant, First Infantry, U. S. A.	do	Lexington, Ky.
Edward E. Robbins.....	Captain and assistant quartermaster, U. S. Volunteers, civil life, Pennsylvania.	Aug. 11	S. S. Mobile.
CAPTAIN.			
Charles C. Walcutt, jr.....	First lieutenant, Eighth Cavalry, U. S. A.	May 12	Manila, Philippine Islands.
Chauncey B. Baker.....	First lieutenant, Seventh Infantry, U. S. A.	do	Jacksonville, Fla.
Julius A. Penn.....	First lieutenant, Second Infantry, U. S. A.	do	On leave.
Ulysses G. McAlexander.....	First lieutenant, Thirteenth Infantry, U. S. A.	do	New York City.
Elias H. Parsons.....	Civil life, Utah.....	do	St. Asaph, Va.
Hiram E. Mitchell.....	Civil life, Oregon.....	do	Knoxville, Tenn.
John B. Jeffery.....	Civil life, Illinois.....	do	San Francisco, Cal.
Benjamin Johnson.....	Civil life, California.....	do	Lexington, Ky.
James R. Hoemer.....	Civil life, New York.....	do	Dunn Loring, Va.
William A. Harper.....	do.....	do	Manila, Philippine Islands.
Thomas H. Cavanaugh.....	Civil life, Michigan.....	do	On leave.
Edward C. McDowell.....	Civil life, Tennessee.....	do	Chattanooga, Tenn.
Francis M. Schreiner.....	Civil life, District of Columbia.....	do	Quartermaster-General's Office.

List of volunteer officers of the Quartermaster's Department, showing acts of Congress authorizing appointments, etc.—Continued.

Name.	Appointed from Army or civil life.	Date of commission.	Station October 1, 1898.
CAPTAIN—continued.			
Arthur Thompson.....	Civil life, New Hampshire.....	May 12	Chattanooga, Tenn.
Charles M. Augur.....	Civil life, Colorado.....	do	Huntsville, Ala.
William K. Alexander.....	Civil life, Virginia.....	do	Jacksonville, Fla.
William G. Ball.....	Civil life, Ohio.....	do	Do.
Abraham S. Bickham.....	do.....	do	Knoxville, Tenn.
George G. Bailey.....	Civil life, New York.....	do	New York City.
Edwin F. Barrett.....	Civil life, Minnesota.....	do	Middletown, Pa.
Ambrose E. Gonzales.....	Civil life, South Carolina.....	do	Santiago, Cuba.
Chester B. Worthington.....	Civil life, Iowa.....	do	Middletown, Pa.
Lloyd Carpenter Griscom.....	Civil life, Pennsylvania.....	do	Havana, Cuba.
Giles H. Holden.....	Civil life, Minnesota.....	do	Lexington, Ky.
John C. W. Brooks.....	First Lieutenant, Fourth Artillery, U. S. A.....	May 17	Havana, Cuba.
Frederick W. Cole.....	Civil life, Florida.....	do	Jacksonville, Fla.
John C. Breckenridge.....	Civil life, New York.....	do	Under orders for duty at Middletown, Pa.
William E. English.....	Civil life, Indiana.....	do	On leave.
Frederick H. Bugher.....	Civil life, District of Columbia.....	do	Do.
Haldimand P. Young.....	Civil life, New York.....	do	Manzanillo, Cuba.
George S. Cartwright.....	First Lieutenant, Twenty-fourth Infantry, U. S. A.....	May 19	Huntsville, Ala.
Cyril W. King.....	Civil life, Iowa.....	May 27	Porto Rico.
Lewis V. Williams.....	Civil life, Ohio.....	do	Knoxville, Tenn.
George McK. Williamson.....	First Lieutenant, Eighth Cavalry, U. S. A.....	May 28	Porto Rico.
Charles D. Palmer.....	First Lieutenant, Sixth Artillery, U. S. A.....	do	Chicago, Ill.
Amos W. Kimball.....	Civil life, New York.....	do	Manila, Philippine Islands.
Moses Walton, jr.....	Civil life, Ohio.....	do	Knoxville, Tenn.
Charles J. Goff.....	Civil life, West Virginia.....	do	On leave.
Robert L. Brown.....	do.....	do	Tampa, Fla.
Thomas Swobe.....	Civil life, Nebraska.....	do	Montauk Point, N. Y.
Richard J. Fanning.....	Civil life, Ohio.....	do	Middletown, Pa.
Frank L. Polk.....	Civil life, New York.....	do	Porto Rico.
Walter Allen.....	Civil life, Colorado.....	June 3	S. S. Obdam.
Charles G. Sawtelle, jr.....	Second Lieutenant, Second Cavalry, U. S. A.....	do	Manila, Philippine Islands.
Alexander W. Perry.....	First Lieutenant, Ninth Cavalry, U. S. A.....	do	S. S. Arizona.
Charles M. Forrest.....	Civil life, District of Columbia.....	do	Anniston, Ala.
Clyde D. V. Hunt.....	Civil life, Vermont.....	do	Jacksonville, Fla.
James H. McMillan.....	Civil life, Michigan.....	do	On leave.
Clifton L. Fenton.....	Civil life, Ohio.....	June 8	S. S. Mohawk.
Albert Gilbert.....	Civil life, New York.....	June 9	Resigned Oct. 1, 1898.
Laurance C. Baker.....	do.....	do	Anniston, Ala.
Jonathan N. Patten.....	Civil life, Iowa.....	do	Montauk Point, N. Y.
Jacques De L. Lafitte.....	First Lieutenant, First Infantry, U. S. A.....	June 10	Mobile, Ala.
William M. Ekin.....	Civil life, Kentucky.....	June 13	Anniston, Ala.
Homer F. Aspinwall.....	Civil life, Illinois.....	do	S. S. Manitoba.
Edward Willis.....	Civil life, South Carolina.....	do	Charleston, S. C.
Wirt Robinson.....	First Lieutenant, Fourth Artillery, U. S. A.....	June 20	New York City.
Samuel A. Smoke.....	First Lieutenant, Nineteenth Infantry, U. S. A.....	do	Knoxville, Tenn.
Samuel V. Ham.....	First Lieutenant, Fifth Infantry, U. S. A.....	do	Middletown, Pa.
Oscar C. Guessas.....	Civil life, Texas.....	June 22	Jacksonville, Fla.
William M. Coulling.....	Civil life, Virginia.....	June 20	S. S. Berlin.
Ross Matthews.....	Civil life, Illinois.....	do	Resigned Sept. 30, 1898.
Edward B. Harrison.....	Civil life, Virginia.....	do	Porto Rico.
Raymond Sulzer.....	Civil life, New Jersey.....	June 23	Manila, Philippine Islands.
Jeremiah Z. Dare.....	Civil life.....	Aug. 11	Quartermaster-General's Office.
James S. Michael.....	do.....	Oct. 1	Awaiting orders.
William P. Williams.....	Civil life, New York.....	July 13	S. S. Chester.
John J. Bradley.....	First Lieutenant, Fourteenth Infantry, U. S. A.....	July 16	Not yet accepted.
John W. McHarg.....	Civil life, New York.....	July 16	Fort Monroe, Va.
J. Edward Farnum.....	Civil life, Pennsylvania.....	do	Santiago, Cuba.
James A. Campbell.....	Civil life, Montana.....	do	Porto Rico.
Thomas S. Grasselli.....	Civil life, Ohio.....	do	Resigned Sept. 19, 1898.
Nathan M. Flower.....	Civil life, New York.....	do	On leave.
Edwin R. Butler.....	Civil life, Arkansas.....	do	Anniston, Ala.
Bon T. Haughawout.....	Civil life, Missouri.....	do	Muntsville, Ala.
Harry B. Chamberlin.....	Civil life, Vermont.....	do	Anniston, Ala.
William S. Scott.....	Civil life, Pennsylvania.....	do	Santiago, Cuba.
Charles T. Baker.....	Civil life, New York.....	do	S. S. Michigan.
William C. R. Colquhoun.....	Civil life, Delaware.....	do	Middletown, Pa.

List of volunteer officers of the Quartermaster's Department, showing acts of Congress authorizing appointments, etc.—Continued.

Name.	Appointed from Army or civil life.	Date of commission.	Station October 1, 1898.
CAPTAIN—continued.			
Samuel Baird.....	Civil life, Iowa.....	July 18	Knoxville, Tenn.
Thomas Downs.....	Civil life, Indiana.....	do	Jefferson Barracks, Mo.
Walter B. Barker.....	Civil life, Mississippi.....	do	Santiago, Cuba.
Charles M. Wrigley.....	Civil life, Colorado.....	do	S. S. Roumanian.
Marion M. McMillin.....	Civil life, New York.....	do	Montauk Point, N. Y.
George L. Goodale.....	Civil life, Massachusetts.....	do	Jacksonville, Fla.
Jesse M. Baker.....	Civil life, Pennsylvania.....	July 23	S. S. Pauama.

List of officers assigned to duty on Government transports October 1, 1898, showing vessel to which assigned and date of assignment.

Name.	Assignment.	
	Date.	Vessel.
<i>Major and quartermaster.</i>		
James L. Wilson.....	Aug. 5, 1898	Minnewaska.
Edward E. Robbins.....	Aug. 20, 1898	Mobile.
<i>Captain and assistant quartermaster.</i>		
Clifton L. Fenton.....	July 6, 1898	Mohawk.
William M. Coulling.....	July 15, 1898	Berlin.
Charles M. Wrigley.....	July 22, 1898	Roumanian.
Homer F. Aspinwall.....	July 23, 1898	Manitoba.
Alexander W. Perry.....	July 27, 1898	Arizona.
Charles T. Baker.....	do	Michigan.
Walter Allen.....	Aug. 4, 1898	Obdau.
Jesse M. Baker.....	Sept. 16, 1898	Panama.
William P. Williams.....	Sept. 20, 1898	Chester.
<i>Captain and commissary of subsistence, acting assistant quartermaster.</i>		
Carroll Mercer.....	July 14, 1898	Mississippi.
James C. Read.....	July 20, 1898	Massachusetts.
Nathaniel T. Messer.....	July 25, 1898	Scandia (hospital ship).
Charles Weiser.....	Aug. 6, 1898	Missouri (hospital ship).
<i>First Lieutenant, Fifth Artillery, acting assistant quartermaster.</i>		
George Le Roy Irwin.....	Aug. 20, 1898	Relief (hospital ship).

List of officers of the Quartermaster's Department having assigned rank (under act approved July 7, 1898), October 1, 1898, showing duty and station.

Name.	Assignment.	
	Duty.	Station.
<i>Colonel.</i>		
Ames S. Kimball.....	Depot quartermaster.....	New York City.
Gilbert Smith.....	do.....	St. Louis, Mo.
John V. Furey.....	do.....	Philadelphia, Pa.
Charles F. Humphrey.....	Chief quartermaster on staff of Major-General Commanding U. S. A.	Washington, D. C.
Charles W. Williams.....	Depot quartermaster.....	Jeffersonville, Ind.
Daniel D. Wheeler.....	Special inspector, Quartermaster's Department.	Washington, D. C.
William S. Patten.....	Principal assistant in Office of Quartermaster-General.	Do.
Crosby P. Miller.....	do.....	Do.

• Commissioned brigadier-general, U. S. Volunteers, September 21, 1898.

List of officers of the Quartermaster's Department having assigned rank (under act approved July 7, 1898), October 1, 1898, showing duty and station—Continued.

Name.	Assignment.	
	Duty.	Station.
<i>Lieutenant-colonel.</i>		
Forrest H. Hathaway	Special inspector, Quartermaster's Department.	Philadelphia, Pa.
John W. Pullman	Depot quartermaster	Ponce, Porto Rico.
George Ruhlen	do	Honolulu, Hawaiian Islands.
Medad C. Martin	Assistant in Office of Quartermaster-General.	Washington, D. C.
Oscar F. Long	Depot quartermaster	San Francisco, Cal.
Frederick G. Hodgson	Assistant in Office of Quartermaster-General.	Washington, D. C.
John B. Bellinger	Depot quartermaster	Tampa, Fla.
<i>Major.</i>		
Theodore E. True	Depot quartermaster	Washington, D. C.
J. McE. Hyde	do	Boston, Mass.
John T. Knight	do	Santiago, Cuba.
Francis M. Schreiner	Assistant in Office of Quartermaster-General.	Washington, D. C.
Jeremiah Z. Dare	do	Do.

**REPORT OF THE COMMISSARY-GENERAL
OF SUBSISTENCE.**

REPORT

OF THE

COMMISSARY-GENERAL OF SUBSISTENCE.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington, D. C., October 17, 1898.

SIR: I have the honor to submit the following report of the operations of the Subsistence Department for the fiscal year ending June 30, 1898, and subsequently to include the date of September 30, 1898.

RESOURCES AND EXPENDITURES.

The following statement exhibits the aggregate fiscal resources and expenditures of the department, and the balances at the close of the period mentioned:

RESOURCES.

Amounts in the Treasury to the credit of the appropriations of the Subsistence Department on June 30, 1897, as follows:			
Subsistence of the Army, 1896.....	\$194,693.89		
Subsistence of the Army, 1897.....	203,849.89		
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—			
Certified claims, acts March 2, 1889, and April 4, 1890	2,044.11		
Certified claims, 1896, act March 2, 1895	7,586.73		
Certified claims, 1897, act June 11, 1896	485.13		
Claim for quartermaster stores and commissary supplies, acts July 4, 1864, and March 2, 1895 .....	.08		
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North (joint resolution approved April 7, 1897)...	108,685.11		
			\$517,344.94
Amounts to the credit of officers of the Subsistence Department and of officers doing duty in the Subsistence Department with the Treasurer, assistant treasurers, and designated depositaries, and in their personal possession on June 30, 1897, as follows:			
Subsistence of the Army, 1897.....	63,893.77		
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—			
Certified claims, 1897, act June 11, 1896.....	608.20		
Relief of sufferers from overflow of Mississippi River and its tributaries and the Red River of the North (joint resolution approved April 7, 1897) ..	20,639.62		
			85,141.59

Amounts refunded to the Treasury near the close of the fiscal year 1897, but not carried to the credit of the appropriation by June 30, 1897, as follows:

Subsistence of the Army, 1897		\$30, 958. 71
Amounts appropriated for the Subsistence Department for the fiscal year ending June 30, 1898, and the period ending January 1, 1899, as follows:		
Subsistence of the Army, 1898, act of March 2, 1897.	\$1, 650, 000. 00	
Subsistence of the Army, January 1, 1899, act of May 4, 1898, \$2, 739, 643.50; act of June 8, 1898, \$5, 000, 000; act of July 7, 1898, \$15, 367, 112.28; total	23, 106, 755. 78	
Subsistence of the Army, 1898—		
Certified claims, act July 19, 1897	149. 38	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1898, act June 4, 1897	4, 000. 00	
Certified claims, 1897, act July 19, 1897	177. 25	
Relief of people in mining regions of Alaska, act of December 18, 1897	200, 000. 00	
		24, 961, 082. 41

Amounts collected from various sources and refunded to the appropriations of the Subsistence Department on the books of the Treasury during the fiscal year 1898, as follows:

Subsistence of the Army, 1895, and prior years	215. 69	
Subsistence of the Army, 1895, and prior years, transfer account	17. 14	
Subsistence of the Army, 1896	1, 077. 25	
Subsistence of the Army, 1897	512. 33	
Subsistence of the Army, 1898	261. 84	
		2, 084. 21

Amounts received by officers of the Subsistence Department and by officers doing duty in the Subsistence Department from sales of subsistence stores to the following purchasers during the fiscal year 1898, and taken up for immediate disbursement under the following appropriations:

Subsistence of the Army, 1897: Sales to officers, \$39.46; refundment, \$32.75	72. 21	
Subsistence of the Army, 1898: Sales to officers, \$250,577.12; to enlisted men, companies, detachments, and hospitals, \$331,400.73; to post exchanges, \$29,953.31; to civilian employees, \$10,851.45; to Quartermaster's Department, \$60.74; to Indian agents, \$2,532.80; to Indian-school teachers, \$113; to Indian physician, \$276.56; to Indian Commission, \$54.13; to naval officers, \$62.88; to United States Boundary Commission, \$232.24; to Yosemite Park Commission, \$19.31; of surplus and condemned stores and property at auction, \$367.61; of boxes, barrels, etc., \$55.02; to Geological Survey, \$35.85	626, 592. 75	
Amounts taken up by officers doing duty in the Subsistence Department on account of reclamations for stores lost, damaged, etc., and in correction of errors in their accounts, etc., during the fiscal year 1898	796. 59	
Relief of people in mining regions of Alaska, act of December 18, 1897: Sales, \$7,176.15; refundments, \$54.86	7, 231. 01	
		634, 692. 54

Amounts charged against officers still in the service on account of funds and stores alleged to have been lost by theft, etc., for which relief can only be obtained in the Court of Claims under sections 1059 and 1062, Revised Statutes, or from Congress, as follows:

Subsistence of the Army, 1880	75. 92	
Subsistence of the Army, 1889	24. 04	
		99. 96
Total resources		26, 231, 404. 47

COMMISSARY-GENERAL OF SUBSISTENCE.

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EXPENDITURES.

Amounts expended on the books of the Treasury from the appropriations of the Subsistence Department during the fiscal year 1898, as follows:

Subsistence of the Army, 1895, and prior years, transfer account	\$0. 14	
Subsistence of the Army, 1896.....	29. 75	
Subsistence of the Army, 1897.....	1,500. 54	
Subsistence of the Army, 1898.....	5. 00	
Subsistence of the Army (certified claims) act January 19, 1897	149. 38	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1897, act June 11, 1897.....	4. 25	
Certified claims, 1897, act July 19, 1897.....	177. 25	
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897 ...	1,418. 54	
		\$3,284. 85

Amounts disbursed by officers of the Subsistence Department and officers doing duty in the Subsistence Department during the fiscal year 1898, as follows:

Subsistence of the Army, 1897.....	20,033. 21	
Subsistence of the Army, 1898.....	2,215,877. 78	
Subsistence of the Army, January 1, 1899.....	3,532,243. 33	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1897, act June 11, 1896.....	119. 75	
Certified claims, 1897, act June 4, 1897.....	1,101. 01	
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897....	3,914. 06	
Relief of people in mining region of Alaska, act of December 18, 1897.....	25,630. 99	
		5,798,920. 13

Amount dropped by officers doing duty in the Subsistence Department in correction of errors in their accounts during the fiscal year 1898:

Subsistence of the Army, 1898.....		67. 49
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Amounts carried to the surplus fund on June 30, 1898:

Subsistence of the Army, 1896.....	195,711. 39	
Subsistence of the Army, 1895, and prior years.....	215. 69	
Subsistence of the Army, 1895, and prior years, transfer account	17. 00	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1896, act of March 2, 1895.....	7,586. 73	
		203,560. 81

Amount transferred to the Pay Department, under instructions from the Secretary of War dated January 17, 1898:

Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, act of June 4, 1897.....		2,881. 82

Total expenditures..... 6,008,715. 10

BALANCES.

Amounts in the Treasury to the credit of the appropriations of the Subsistence Department on June 30, 1898 (in which is included the appropriation of \$15,367,112.28, made by act of July 7, 1898), as follows:

Subsistence of the Army, 1897	277,753. 21
Subsistence of the Army, 1898	706. 07
Subsistence of the Army, January 1, 1899.....	3,391,478. 94
Subsistence of the Army, January 1, 1899, act of July 7, 1898.....	15,367,112. 28

Amounts in the Treasury to the credit of the appropriations of the Subsistence Department, etc.—Continued.

Commutation of rations to prisoners of war in rebel States and soldiers on furlough—

Certified claims, acts March 2, 1889, and April 4, 1890	\$2, 044. 11
Certified claims, 1897, act June 11, 1896	480. 88
Claim for quartermaster stores and commissary supplies, acts July 4, 1864, and March 2, 1895 .....	. 08
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897.	123, 992. 13
Relief of people in mining regions of Alaska, act of December 18, 1897	174, 433. 87
	<hr/> \$19, 338, 001. 57

Amounts to the credit of officers of the Subsistence Department and of officers doing duty in the Subsistence Department with the Treasurer, assistant treasurers, and designated depositaries, and in their personal possession, on June 30, 1898, as follows:

Subsistence of the Army, 1898	59, 220. 23
Subsistence of the Army, January 1, 1899	814, 183. 06
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—	
Certified claims, 1897, act June 11, 1896	488. 45
Certified claims, 1897, act June 4, 1897	17. 17
Relief of people in mining regions of Alaska, act of December 18, 1897	7, 166. 15
	<hr/> 881, 075. 06

Amounts refunded to the Treasury near close of fiscal year 1898, but not carried to the credit of the appropriation by June 30, 1898, as follows:

Subsistence of the Army, 1898	1, 774. 61
Subsistence of the Army, January 1, 1899	1, 738. 17
	<hr/> 3, 512. 78

Amounts charged against officers still in the service on account of funds and stores alleged to have been lost by theft, etc., for which relief can only be obtained in the Court of Claims under sections 1059 and 1062, Revised Statutes, or from Congress, as follows:

Subsistence of the Army, 1880	75. 92
Subsistence of the Army, 1889	24. 04
	<hr/> 99. 96

Total balances..... 20, 222, 689. 37

THE DUTIES OF THE SUBSISTENCE DEPARTMENT.

The Subsistence Department is charged with the duty of purchasing and issuing to the Army such supplies as enter into the composition of the ration, and of procuring and keeping for sale to officers and enlisted men such articles as may from time to time be designated by the inspectors-general of the Army with the approval of the Secretary of War. Incidental to the above, it was the duty of the Department up to the year 1894 to provide bake ovens at posts and in the field, and for the repairs thereof; but by General Orders No. 40, Headquarters of the Army, August 29, 1894, the duty of building, furnishing, and repairing permanent bake ovens and procuring field ovens was transferred to the Quartermaster's Department, and the duty of issuing matches for lighting the fires and lamps for which fuel and illuminating supplies were issued by that Department was transferred to the Subsistence Department.

**THE ORGANIZATION OF THE PERSONNEL OF THE SUBSISTENCE
DEPARTMENT.**

On April 1, 1898, the Subsistence Department of the Army consisted of the following officers, viz:

	Rank.	Number.
Commissary-General of Subsistence	Brigadier-general....	1
Assistant commissaries-general of subsistence.....	Colonel.....	2
Do	Lieutenant-colonel....	3
Commissaries of subsistence.....	Major.....	8
Do	Captain.....	8
Total		22

At that time there were 96 commissary sergeants in the service.

An "army corps" organized on the basis of the maximum organization prescribed by section 9 of the act for temporarily increasing the military establishment, approved April 22, 1898, consists of 3 divisions of 3 brigades each, each brigade consisting of 3 regiments of about 1,300 enlisted men each. The number of enlisted men to an army corps, therefore, would be the product of:

$$3 \times 3 \times 3 \times 1,300 = 35,100.$$

The number of subsistence officers necessary for the officering of an army corps is 13, consisting of 1 chief commissary of the army corps, 3 chief commissaries of divisions, and 9 commissaries of brigades.

Had all the officers of the Subsistence Department (22 in number, including the Commissary-General of Subsistence and the assistants in his office) been ordered into the field in April, 1898, they would have been sufficient for properly officering with subsistence officers only 1 army corps of maximum enlisted strength and 1 army corps of two-thirds maximum enlisted strength. The country was at that time divided into 8 military departments, requiring the presence of a chief commissary of subsistence at the headquarters of each, and 16 of the officers of the Department were then performing duty as purchasing and depot commissaries, some of whom were also chief commissaries.

The strength of the enlisted force of the Regular Army on the active list on April 1, 1898, was limited to 25,000 men, exclusive of the hospital corps, which consisted of 725 enlisted men. This force was distributed in garrisons ranging from Maine to Alaska.

THE RATION.

The articles composing the ration of the enlisted men of the Army are fixed by law. Section 1146, Revised Statutes, prescribes that each ration shall consist of—1½ pounds beef, or ¾ pound pork; 18 ounces bread, or 18 ounces flour, and at the rate of 10 pounds coffee, 15 pounds sugar, 2 quarts salt, 4 quarts vinegar, 4 ounces pepper, 4 pounds soap, and 1½ pounds candles to every 100 rations.

It further prescribes that—

The President may make such alterations in the component parts of the ration as a due regard to the health and comfort of the Army and economy may require.

Section 5 of the act of June 16, 1890 (26 Stat. L., 158), prescribes:

That the army ration now provided by law shall be increased by the addition thereto of one pound of vegetables, the proportion to be fixed by the Secretary of War.

Under the authority of the foregoing legislation, the ration officially established and promulgated by Army Regulations in force in April, 1898, was composed of the following kinds and quantities of articles for troops stationed where cooking was practicable:

Articles.	Quantities per ration.	
	Ounces.	Gills.
<i>Meat components.</i>		
Fresh beef.....	20	.....
or fresh mutton, when the cost does not exceed that of beef.....	20	.....
or pork.....	12	.....
or bacon.....	12	.....
or salt beef.....	22	.....
or, when meat can not be furnished, dried fish.....	14	.....
or pickled fish.....	18	.....
or fresh fish.....	18	.....
<i>Bread components.</i>		
Flour.....	18	.....
or soft bread.....	18	.....
or hard bread.....	16	.....
or corn meal.....	20	.....
Baking powder for troops in the field, when necessary to enable them to bake their own bread.....	12	.....
<i>Vegetable components.</i>		
Beans.....	2½	.....
or peas.....	2½	.....
or rice.....	1½	.....
or hominy.....	1½	.....
Potatoes.....	16	.....
or potatoes, 12½ ounces, and onions, 3½ ounces.....	16	.....
or potatoes, 11½ ounces, and canned tomatoes, 4½ ounces; or 4½ ounces of other fresh vegetables not canned, when they can be obtained in the vicinity of the post or transported in a wholesome condition from a distance.....	16	.....
<i>Coffee and sugar components.</i>		
Coffee, green.....	1½	.....
or roasted coffee.....	1½	.....
or tea, green or black.....	2½	.....
Sugar.....	2½	.....
or molasses.....	.....	1½
or cane sirup.....	.....	1½
<i>Seasoning components.</i>		
Vinegar.....	.....	½
Salt.....	½	.....
Pepper, black.....	½	.....
<i>Soap and candle components.</i>		
Soap.....	½	.....
Candles (when illuminating oil is not furnished by the Quartermaster's Department).....	½	.....

The usual rule, subject to local or temporary controlling circumstances, for the issue of the meat portion of the ration in the Army is that seven days' fresh meat shall be issued to three days' salt meat.

In the case of troops traveling otherwise than by marching, or when for short periods they were separated from cooking facilities and did not carry cooked rations, they were allowed by the Army Regulations the following articles in lieu of all components of the ordinary ration:

Articles.	Per 100 rations.
Soft bread.....	112½ pounds..
or hard bread.....	100 do..
Beef, canned.....	75 do..
Baked beans, 1-pound cans.....	33 number..
or baked beans, 3-pound cans.....	15 do..
Coffee, roasted.....	8 pounds..
Sugar.....	15 do..

After troops had subsisted upon the travel ration for four consecutive days they were allowed canned tomatoes, in addition to the travel ration, at the rate of 1 pound of tomatoes per man per day.

The various kinds of rations, according to specific designations, issued in actual service are shown by the following tables, which also show the components of each, and the weight of 100 rations and of 1 ration each:

TABLE I.—The "Garrison" ration.

Articles.	Per 100 rations.	Articles.	Per 100 rations.
<i>Meat components.</i>		<i>Vegetable components—Continued.</i>	
Fresh beef.....	Pounds. 125	Potatoes.....	Pounds. 100
or fresh mutton, when the cost does not exceed that of beef.....	125	or 30 pounds of other fresh vegetables, not canned, when they can be obtained in the vicinity of the post or transported in a wholesome condition from a distance...	30
or pork.....	75	<i>Coffee and sugar components.</i>	
or bacon.....	75	Coffee, green.....	10
or salt beef.....	137.5	or roasted coffee.....	8
or, when meat can not be furnished, dried fish.....	87.5	or tea, green or black.....	2
or pickled fish.....	112.8	Sugar.....	15
or fresh fish.....	112.8	or molasses.....	a 2
or canned salmon.....	100	or cane sirup.....	a 2
<i>Bread components.</i>		<i>Seasoning components.</i>	
Flour.....	112.8	Vinegar.....	a 1
or soft bread.....	112.8	Salt.....	4
or hard bread.....	100	Pepper, black.....	0.25
or corn meal.....	125	<i>Soap and candle components.</i>	
Baking powder for troops in the field when necessary to enable them to bake their own bread.....	4	Soap.....	4
<i>Vegetable components.</i>		Candles (when illuminating oil is not furnished by the quartermaster's department).....	1.5
Beans.....	15	Weight of 100 rations, 387.75 pounds.	
or pease.....	15	Weight of 1 ration, 3.88 pounds.	
or rice.....	10	In proportion of various components as ordinarily issued.	
or hominy.....	10		
Potatoes.....	100		
or potatoes.....	80		
and onions.....	20		
or potatoes.....	70		
and tomatoes, canned.....	30		

a Gallons.

TABLE II.—The "Field" ration.

Articles.	Per 100 rations.
Bacon.....	Pounds. 75
Hard bread.....	100
Beans or pease.....	15
or rice or hominy.....	10
Potatoes, onions, and canned tomatoes, when possible.....	100
Coffee, roasted.....	8
Sugar.....	15
Vinegar.....	a 1
Candles.....	1.5
Soap.....	4
Salt.....	4
Pepper, black.....	.25
Weight of 100 rations, 330.75 pounds.	
Weight of 1 ration, 3.31 pounds.	
In proportion of various components as ordinarily issued.	

a Gallon.

TABLE III.—*The "Travel" ration, used on journeys by railroads, stages, or steamboats.*

Articles.	Per 100 rations.
<i>Pounds.</i>	
[For first four days.]	
Hard bread.....	100
Canned beef.....	75
Beans, baked, 3-pound cans.....	45
Coffee, roasted.....	8
Sugar.....	15
Weight of 100 rations, 243 pounds.	
Weight of 1 ration, 2.43 pounds.	
[After fourth day add:]	
Tomatoes, gallon cans.....	100
Weight of 100 rations, 343 pounds.	
Weight of 1 ration, 3.43 pounds.	

TABLE IV.—*The "Travel" ration for journeys when liquid coffee is furnished.*

Articles.	Per 100 rations.
<i>Pounds.</i>	
Hard bread.....	100
Beef, canned.....	75
Beans, baked, 3-pound cans.....	45
Liquid coffee.....	37.5
or for purchase of liquid coffee.....	21
Weight of 100 rations, 230 pounds.	
Weight of 1 ration, 2.2 pounds.	

a Gallons.

TABLE V.—*The "Emergency" ration, as authorized by General Orders, No. 49, Headquarters of the Army, Adjutant-General's Office, series of 1896.*

Articles.	Per 100 rations.
<i>Pounds.</i>	
Hard bread.....	100
Bacon.....	62½
Pea meal.....	25
Coffee, roasted and ground.....	12½
Saccharin.....	10
Salt.....	4
Pepper, black.....	½
Tobacco, plug.....	3½
Bags, wrappers, etc.....	3
Weight of 100 rations, 207½ pounds.	
Weight of 1 ration, 2.07 pounds.	

STORES FOR SALES TO OFFICERS AND ENLISTED MEN.

In order that, in case of war, a definite policy should be established in respect to taking into the field supplies authorized to be kept by the Subsistence Department for sales to officers and enlisted men, under section 1144, Revised Statutes, the Acting Commissary-General of Subsistence, on April 9, 1898, addressed a letter to the Secretary of War, which resulted in the adoption of the following list of stores to be furnished for sales in the field:

All articles which are components of the ration and the following:

Apples, canned.	Tobacco, smoking, two varieties.
Apricots, dried.	Soap, toilet.
Bacon, breakfast.	Soap, laundry.
Baking powder.	Metal polish, two varieties.
Cheese, American, Edam.	Tripoli flour.
Chocolate, plain, vanilla.	Buttons, trousers.
Coffee, Java-Mocha.	Needlebooks, with needles.
Corn, green, canned.	Pins.
Crackers, three varieties.	Thread, cotton, white.
Effervescing drinks, such as ginger ale.	Thread, linen, white.
Ham, deviled, canned.	Thread, linen, black.
Ham, sugar-cured.	Envelopes.
Milk, canned.	Ink, black.
Oatmeal, one variety.	Paper, note.
Peaches, canned and evaporated.	Pencils, lead.
Pease, American, canned.	Penholders.
Preserves, Damson, canned.	Pens.
Prunes.	Basins, hand.
Sardines.	Blacking, shoe.
Soup, four varieties.	Brooms, whisk.
Sugar, white.	Brushes, blacking.
Sirup.	Brushes, hair.
Tongue, beef, canned.	Brushes, tooth.
Ginger, ground.	Can openers.
Jam, blackberry.	Combs, coarse.
Jelly, currant.	Combs, fine.
Lime juice.	Combs, pocket.
Mustard, ground.	Handkerchiefs, linen.
Pepper, red, Cayenne, Chile-Colorado.	Handkerchiefs, silk.
Pickles.	Matches, safety.
Salt, table.	Paper, toilet.
Sauce, cranberry.	Shoestrings.
Sauce, table, Worcestershire.	Towels.
Pipes, briarwood, one variety.	Towelings.
Tobacco, chewing.	

THE WAR WITH SPAIN.

Such were the conditions existing on the 20th day of April, 1898, when the joint resolution recognizing the independence of the people of Cuba and directing the President to use the land and naval forces of the United States for the purpose of carrying the resolution into effect was approved by the President of the United States.

Already, in anticipation of the actual breaking out of hostilities between the United States and Spain, the Acting Commissary-General of Subsistence had, at the beginning of the month of April, 1898, advised all chief and purchasing commissaries to have at all posts travel rations adequate to the wants of the full garrisons if ordered to move, and to ascertain and list the houses from whom articles of the ration and of the travel ration could be had at once if wanted in large quantities. By actual inspection of the returns of subsistence stores for the preceding month on file in the office of the Commissary-General of Subsistence there were found to be on hand at each post more than thirty days' supplies for the number of men at each and thirty days' supplies of stores classed as perishable, besides supplies for sales (canned goods, etc.) in equal or greater quantities. It had also at that time been recommended by the Acting Commissary-General of Subsistence that orders which might issue directing any garrison to change station should include a requirement that, if the whole garrison moved, all salted meats should be taken with it, and proportionately if only a part moved, and that at least thirty days' rations (excluding fresh beef) should be taken.

Some movements of the artillery toward the seacoast had been ordered during the month of March, 1898, but it was not until April 15, 1898, that orders were issued from the office of the Adjutant-General of the Army directing a general movement of the Regular Army from the posts scattered throughout the eight military departments, covering almost the entire area of the United States, to the places of concentration at Chickamauga National Park, New Orleans, Mobile, and Tampa. The orders issued that day required the troops in all cases to take with them thirty days' field rations, and an order of the following day directed all the articles of the ration and stores for sales at the various posts on railroads, where economy would be subserved, over and above a reasonable amount to be left for the troops retained at the posts, to be invoiced and shipped to the commissaries at the camps to which the troops of each post were transferred, the stores to follow the departure of the troops with as little delay as practicable. This was with the view of utilizing the stock of subsistence stores on hand at the posts instead of leaving them to deteriorate in the hands of the depleted garrisons.

An officer of the Subsistence Department was already on duty at New Orleans as purchasing and depot commissary, and on April 19, 1898, an order was issued assigning regular officers of the Subsistence Department to duty on the staffs of the commanding generals at Chickamauga National Park, Mobile, and Tampa. On April 22, 1898, the President approved the act to provide for temporarily increasing the military establishment, and on April 23, 1898, he issued his proclamation calling for 125,000 volunteers. On April 25 he approved the act declaring that war existed between the United States and the Kingdom of Spain, and on April 26 he approved the act for the better organization of the line of the Army, which increased the Regular Army by the addition of about 36,000 enlisted men.

The first officers to enter the Volunteer Army as subsistence officers were five officers of the regular Subsistence Department, who were given the rank of lieutenant-colonel of volunteers. As the law authorizing these appointments required the appointees to serve as chief commissaries of subsistence of volunteers in the field, the Subsistence Department would have lost the services of all of them as purchasing and depot officers if it had not been for the act of June 29, 1898 (30 Stat. L., 525), which made the assignments of the officers of the volunteer staff subject to the same rules and regulations as those of the Regular Army. Three of these officers have been continuously in the field, and the remaining two have been doing purchasing and depot duty in addition to any duty required of them in connection with their volunteer commissions.

The following is a list of all subsistence officers of volunteers appointed between the passage of the act of April 22, 1898, and August 31, 1898, with the date of acceptance of commission, date of filing of official bond, and date of first assignment to duty in each case:

COMMISSARY-GENERAL OF SUBSISTENCE.

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Chief commissaries of subsistence.

WITH THE RANK OF LIEUTENANT-COLONEL.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Oliver E. Wood	U. S. A. . . .	1898. May 10	1898. May 21	1898. May 25	1898. May 18	Chief commissary, Seventh Army Corps.
2. James N. Allison	U. S. A. . . .	....do....	May 25	June 11	May 24	Chief commissary, Second Army Corps.
3. Tasker H. Bliss	U. S. A. . . .	....do....	June 9	June 14	May 23	Chief commissary, Sixth Army Corps.
4. Edward E. Dravo	U. S. A. . . .	....do....	May 21	....do....	.....	Chief commissary, Department of the Gulf, and purchasing commissary, Atlanta, Ga.
5. William H. Baldwin ..	U. S. A. . . .	....do....	May 25	June 17	.....	Chief commissary, Department of California, and purchasing commissary, San Francisco, Cal.
6. Charles H. Grierson ..	U. S. A. . . .	....do....	June 1	June 9	June 23	Chief commissary, Fourth Army Corps.
7. David L. Brainard	U. S. A. . . .	....do....	May 18	May 20	May 17	Chief commissary, Department of the Pacific.

WITH THE RANK OF MAJOR.

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	Date.	Duty.
1. James O. Varnedoe...	Ga.	1898. May 17	1898. May 30	1898. June 5	1898. June 14	Commissary, First Division, First Army Corps.
2. James M. Moody	N. C. ....	....do....	May 28	May 28	June 1	Staff of Major-General Coppinger.
3. Samuel W. Hay	Pa. ....	....do....	June 4	June 9	June 13	Commissary, Second Division, Second Army Corps.
4. Wm. M. Abernethy ..	Mo.	May 19	June 6	June 14	June 11	Commissary, First Division, Second Army Corps.
5. David B. Wilson	U. S. A. . .	May 20	June 3	June 15	June 5	Assistant to chief commissary, Fifth Army Corps.
6. Hugh J. Gallagher ..	U. S. A. . .	....do....	....do....	....do....	June 7	Commissary, Cavalry Division, Fifth Army Corps.
7. James C. Mullikin ...	Md.	June 10	June 18	June 20	June 22	Commissary, Second Division, Third Army Corps.
8. Sydney A. Cloman ...	U. S. A. . .	May 28	June 3	.....	May 14	Commissary, First Expedition to Philippines.
9. Philip Mothersill	N. Mex. ....	....do....	June 13	June 23	June 20	Commissary, Third Division, First Army Corps.
10. Edmund W. Bach	Mont. ....	....do....	June 14	June 24	July 2	Chief Commissary, Department of Dakota, and purchasing commissary, St. Paul, Minn.
11. Robert L. Longstreet	Ga.	May 31	June 14	June 16	June 20	Commissary, Third Division, Seventh Army Corps.
12. Evelyn S. Garnett ...	Ark. ....	....do....	....do....	June 18	June 22	Commissary, Third Division, Fourth Army Corps.
13. George T. Bartlett ...	U. S. A. . .	June 3	June 18	June 27	June 21	Assistant to purchasing commissary, San Francisco, Cal.
14. John D. Black	N. Dak. ....	....do....	June 17	June 23	June 24	Staff of Maj. Gen. N. A. Miles.
15. Robert H. Fitzhugh ..	Pa. ....	....do....	June 11	June 14	June 11	Assistant to chief commissary, Department of the Pacific.
16. Wm. M. Grinnell	N. Y. ....	....do....	June 15	June 16	June 17	Commissary, Second Division, First Army Corps.
17. Walter K. Wright	U. S. A. . .	June 7	June 18	June 29	June 28	Commissary, First Division, Second Army Corps.

REPORT OF THE SECRETARY OF WAR.

Chief commissaries of subsistence—Continued.

WITH THE RANK OF MAJOR—Continued.

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
18. Geo. W. H. Stouch ...	U. S. A. ..	1898. June 9	1898. June 16	1891. June 17	1898. .....do ...	Chief commissary, Department of the Colorado, and purchasing commissary, Denver, Colo.
19. Herbert Kats	N. J.	June 13	June 28	June 30	July 9	Commissary, Third Division, Third Army Corps.
20. Jos. H. Heatwole.....	Ind. ....	.....do ...	June 27	July 1	July 3	Commissary, First Division, Third Army Corps.
21. Harry E. Wilkins.....	U. S. A. ..	June 20	Aug. 22	.....	.....

Commissaries of subsistence.

WITH RANK OF MAJOR.

[Under act approved July 7, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Rufus M. Townsend...	N. Y.	1898. July 16	1898. July 28	1898. Aug. 10	1898. Aug. 27	Commissary, Second Division, Fourth Army Corps.
2. Frederick A. Smith ...	U. S. A. ....	.....do ...	Aug. 17	Aug. 20	Aug. 17	Chief commissary, Department of the Lakes.
3. Solomon F. Thorn.....	Cal. ....	.....do ...	Aug. 5	Aug. 22	Aug. 13	Chief Commissary, Department of California.
4. Morris C. Foote	U. S. A. ....	.....do ...	July 22	Aug. 23	.....	Commissary, Third Brigade, Second Division, Fifth Army Corps.
5. Henry Page	Utah .....	.....do ...	July 26	Aug. 12	Sept. 7	
6. Daniel Hogan	Ill. ....	.....do ...	Aug. 8	Aug. 9	Aug. 11	Assistant to purchasing commissary, Porto Rico.
7. George W. Ruthers ...	U. S. A. ....	.....do ...	July 31	Aug. 3	Aug. 5	Purchasing and depot commissary, Jacksonville, Fla.
8. William Williams.....	N. Y. ....	.....do ...	July 20	July 27	Aug. 1	Commissary and acting assistant quartermaster, steamer Chester.

WITH RANK OF CAPTAIN.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Elmore F. Taggart...	U. S. A.	1898. May 12	1898.	1898.	1898. May 16	Commissary, First Brigade, First Division, Fifth Army Corps.
2. Alexander R. Piper ..	U. S. A. ....	.....do ...	June 2	June 13	July 11	Commissary, Second Brigade, First Division, First Army Corps.
3. Harold E. Cloke.....	U. S. A. ....	.....do ...	June 8	June 4	June 20	Commissary, First Brigade, First Division, First Army Corps.
4. Parker W. West	U. S. A. ....	.....do ...	Declined	.....	.....	Assistant to chief commissary, Fourth Army Corps.
5. R. W. Thompson, Jr. ..	Ind. ....	.....do ...	June 20	July 1	July 6	
6. Daniel Van Voorhis...	Ohiodo ...	May 27	June 8	May 27	Commissary, First Brigade, Independent Division, Department of the Pacific

COMMISSARY-GENERAL OF SUBSISTENCE.

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Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
7. Samuel B. Bootes	Ohio	1898. May 12	1898. May 31	1898. May 31	1898. June 8	Commissary, Independent Division, Department of the Pacific.
8. Lee Linn	Ind .....	.....do ...	June 1	June 8	June 15	Miscellaneous duties, Camp Merritt, Cal.
9. William A. Tucker ..	Tenn .....	.....do ...	May 26	May 26	May 31	Staff of Brigadier-General Anderson, Department of the Pacific.
10. Theodore B. Hacker..	Tenn .....	.....do ...	May 24	May 24	May 26	Commissary, Second Division, Seventh Army Corps.
11. Frank H. Lord	N. Y .....	.....do ...	May 25	June 7	June 9	Commissary, First Division, Fifth Army Corps.
12. John H. Earle	S. C .....	.....do ...	Declined			
13. Jay Cooke, 3d	Pa .....	.....do ...	May 27	May 27	May 28	Staff of Major-General Wade, Chickamauga, Ga.
14. Thos. C. Catchings, jr.	Miss .....	.....do ...	May 31	May 31	June 4	Commissary, First Brigade, Second Division, Seventh Army Corps.
15. Eben B. Fenton	Mich .....	.....do ...	June 3	June 8	June 15	Commissary, First Brigade, Third Division, Second Army Corps.
16. Joseph A. Cox	Pa .....	.....do ...	Declined			
17. Martin M. Marshall ..	Iowa .....	.....do ...	June 2	June 6	June 14	Commissary, Third Brigade, Second Division, Third Army Corps.
18. Robert H. Beckham ..	Tex .....	.....do ...	May 30	May 31	June 4	Commissary, First Brigade, Cavalry Division, Fifth Army Corps.
19. Stewart M. Brice	N. Y	May 17	May 27	May 28	May 27	Staff of Major-General Shafter, Fifth Army Corps.
20. Oliver Perry Smith ..	Pa .....	.....do ...	June 9	June 13	June 15	Commissary, Third Brigade, Second Division, Seventh Army Corps.
21. Edward R. Hutchins..	Iowa .....	.....do ...	May 31	June 11	June 10	Commissary, Third Brigade, First Division, Second Army Corps.
22. Salmon F. Dutton	Vt .....	.....do ...	June 2	June 4	June 8	Commissary, Third Brigade, First Division, Third Army Corps.
23. Orson Pettijohn	Ill .....	.....do ...	June 4	June 12	June 15	Commissary, Third Brigade, Second Division, Second Army Corps.
24. John Landstreet, jr. ..	Tenn .....	.....do ...	May 28	May 28	June 2	Commissary, Second Division, Second Army Corps.
25. Peter C. Deming	N. Y .....	.....do ...	June 6	June 10	June 15	Commissary, Second Brigade, First Division, Second Army Corps.
26. Edward Glines	Mass .....	.....do ...	June 10	July 4	July 13	Commissary, Light Artillery Brigade, Third Army Corps.
27. Morton J. Henry	Pa .....	.....do ...	May 28	May 28	June 2	Commissary, Second Brigade, Cavalry Division, Fifth Army Corps.
28. Philip M. Lydig	N. Y .....	.....do ...	May 27	.....do .....	.....do	Commissary, Light Artillery Brigade, First Army Corps.

Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
29. James F. Jenkins	Wyo.....	1898. May 17	1898. June 11	1898. June 16	1898. June 20	Commissary, First Brigade, Third Division, Fourth Army Corps.
30. John Carmichael.....	Va.....	.....do ...	July 12	July 18	July 18	Depot commissary, Lakeland, Fla.
31. Miller R. Downing ...	Ohio.....	.....do ...	June 2	June 13	June 13	Commissary, First Brigade, Second Division, Third Army Corps.
32. Wilson I. Davenny ...	Ill.....	.....do ...	June 4	June 10	June 19	Commissary, First Brigade, Third Division, First Army Corps.
33. Seth M. Milliken.....	Me.....	.....do ...	June 1	June 7	June 10	Commissary, Third Brigade, Independent Division, Department of the Pacific.
34. Frederick W. Hyde ...	N. Y.....	May 19	May 30	June 2	June 6	Commissary, First Brigade, First Division, Second Army Corps.
35. James E. Calhoun.....	.....do ...	.....do ...	May 31	June 5	June 14	Staff of Major-General Butler, Second Army Corps.
36. Wm. H. Anderson.....	Ohio.....	.....do ...	June 3	June 3	June 3	Staff of Brigadier-General Greene, Department of the Pacific.
37. George B. McCallum ..	Tenn.....	.....do ...	June 21	July 2	July 7	Commissary, Second Brigade, Second Division, Fourth Army Corps.
38. Ralph P. Howell.....	Iowa.....	May 20	May 31	June 6	June 10	Commissary, Second Brigade, Second Division, Seventh Army Corps.
39. Don A. Dodge.....	Minn.....	.....do ...	June 11	June 18	June 20	Commissary, Second Brigade, First Division, Third Army Corps.
40. Warner Harrison.....	Ohio.....	May 28	June 10	June 15	June 16	Commissary, Second Brigade, Second Division, Third Army Corps.
41. Charles Ellet Cabell..	Va.....	.....do ...	June 6	June 7	June 10	Commissary, Third Brigade, Second Division, First Army Corps.
42. Joseph N. DuBarry, jr	Pa.....	.....do ...	June 7	June 10	June 14	Commissary, Second Brigade, Second Division, Second Army Corps.
43. Winslow S. Lincoln..	Mass.....	.....do ...	June 11	June 16	June 20	Commissary, Third Division, Fourth Army Corps.
44. William Larrabee, jr.	Iowa.....	June 3	June 21	July 12	July 16	Commissary, First Brigade, First Division, Third Army Corps.
45. Joseph B. Handy.....	Del.....	.....do ...	June 14	June 16	June 17	Commissary, Second Brigade, Independent Division, Department of the Pacific.
46. Warren C. Fairbanks.	Ind.....	.....do ...	June 10	June 11	June 14	Commissary, Second Brigade, Second Division, First Army Corps.
47. John P. Teagarden...	Pa.....	June 4	June 20	July 4	July 14	Commissary, Third Brigade, Second Division, Fourth Army Corps.
48. John W. Barker.....	U. S. A ..	June 8	Declined	.....	.....	.....
49. C. Dupont Coudert...	N. Y.....do ...	June 20	June 21	June 27	Assistant to chief commissary, Department of the Pacific.

COMMISSARY-GENERAL OF SUBSISTENCE.

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Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
50. George W. Nellis....	N. Y.	1898. June 8	1898. June 20	1898. June 22	1898. July 1	Commissary, First Brigade, Second Division, Second Army Corps.
51. Edwin W. Hurlbut ..	Colo. ....	.....do .....	.....do	June 30	July 2	Commissary, Provisional Cavalry Brigade, Fourth Army Corps.
52. Charles E. Golden....	Wyo. ....	.....do	June 21	June 28	.....do	Commissary, Second Brigade, Third Division, First Army Corps.
53. James Colfax Grant..	Minn. ....	.....do	June 20	June 27	.....do	Commissary, Third Brigade, Third Division, First Army Corps.
54. Carl K. Mower.....	Ohio.....	.....do	June 18	June 20	July 6	Commissary, Third Brigade, First Division, First Army Corps.
55. Frederic H. Pomroy..	N. Y. ....	.....do	June 20	June 28	July 2	Commissary, First Brigade, Second Division, Fourth Army Corps.
56. Thomas H. Simms....	Ark.	June 9	June 23	July 1	July 5	Assistant to purchasing commissary, Cincinnati, Ohio.
57. James E. B. Stuart...	Va. ....	.....do	June 20	June 21	June 23	Commissary, First Brigade, First Division, Seventh Army Corps.
58. Carroll Mercer.....	Md. ....	.....do	June 21	June 27	June 27	Commissary, First Brigade, Second Division, Fourth Army Corps.
59. Albert S. Brookes....	U. S. A. ..	June 13	June 23	July 7	July 15	Chief commissary, Department of the Columbia, and purchasing commissary, Vancouver Barracks, Wash.
60. William W. Statham.	Va. ....	.....do	June 27	June 29	June 29	Commissary with Second Army Corps.
61. Joseph F. Evans.....	Cal.	June 16	June 25	June 27	June 30	Collection of duties, Philippine Islands.
62. Robert D. Winthrop.	N. Y.	June 20	July 1	July 5	July 5	Commissary, Third Brigade, Second Division, Fourth Army Corps.
63. William H. Lyons....	Ky. ....	.....do	June 28	June 29	June 29	Commissary, First Brigade, First Division, Second Army Corps.
64. John M. Tobin.....	Mass. ....	.....do	June 30	July 1	July 2	Commissary, First Brigade, Second Division, First Army Corps.
65. Nathaniel T. Messer.	Cal. ....	.....do	July 7	Aug. 8	July 25	Commissary and acting assistant quartermaster, steamer Scandia, California.
66. Charles W. Neal.....	Iowa	June 20	July 4	July 10	July 12	Commissary, Second Brigade, Second Division, Fourth Army Corps.
67. William F. Dunn.....	Wyo.	June 23	July 15	July 28	July 28	Assistant to depot commissary, Fernandina, Fla.
68. William J. Ryan.....	Ohio.....	July 25	July 27	July 30	Aug. 24	Commissary with Seventh Army Corps.
69. Harlow L. Street.....	.....	Aug. 3	Aug. 6	Aug. 16	Aug. 30	Commissary, Third Brigade, First Division, Second Army Corps.
70. Allerton S. Cushman.	.....	Aug. 11	.....	.....	.....

Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
71. Patrick H. McCaull..	Va.....	1898. Aug. 11	1898. Aug. 18	1898. Aug. 23	1898. Aug. 31	Assistant to purchasing commissary Dunn Loring, Va.
72. Henry E. Tiepke.....	R. I.....	.....do	.....do	.....do	.....do	.....do
73. William M. Loveland.	.....	.....do	Aug. 18	Aug. 23	Sept. 13	Assistant to purchasing commissary, Huntsville, Ala.

WITH RANK OF CAPTAIN.

[Under act approved July 7, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	Date.	Duty.
1. John B. Clarke	Ill	1898. July 16	1898. July 25	1898. July 29	1898. Aug. 24	Commissary with Seventh Army Corps.
2. James A. Logan, jr. .	Pa.....	.....do	.....do	Aug. 2	Aug. 13	Assistant to chief commissary, Chickamauga, Ga.
3. James A. Bailey, jr..	Mass .....	.....do	Declined	.....	.....	.....
4. Isaac D'Isay	Mo .....	.....do	July 26	Aug. 1	Aug. 24	Chief quartermaster, Third Division, Seventh Army Corps.
5. James C. Baldridge..	.....	.....do	July 20	July 29	July 30	Commissary, First Brigade, Second Division, Seventh Army Corps.
6. William B. Cowin	Nebr .....	.....do	July 26	July 28	Aug. 24	Commissary with Seventh Army Corps.
7. Abraham Benedict...	N. Y.....	.....do	July 23	Aug. 10	Aug. 1	Assistant to purchasing commissary, Dunn Loring, Va.
8. Charles Welser	N. Y.....	.....do	July 26	July 29	Aug. 6	Commissary and acting assistant quartermaster, hospital steamer Missouri.
9. Thomas F. Ryan .....	.....	.....do	July 23	July 26	Aug. 8	Assistant to purchasing commissary, Montauk Point, N. Y.
10. William B. Hale	Tenn .....	.....do	July 25	Aug. 9	Aug. 24	Commissary with Seventh Army Corps.
11. James C. Read	Pa.....	.....do	July 19	July 20	July 20	Commissary and acting assistant quartermaster, steamer Massachusetts.
12. Samuel N. Bridgman.	.....	July 21	Sept. 1	Sept. 17	Sept. 27	Commissary with Second Army Corps.

The seven chief commissaries of subsistence of volunteers with the rank of lieutenant-colonel, who had been appointed from the Regular Army, were assigned to duty on the staffs of the commanding generals of the seven army corps established by General Orders, No. 46, Headquarters of the Army, May 16, 1898. Those chief commissaries of volunteers having the rank of major were as a rule assigned to the staffs of division commanders, and the commissaries having the rank of captain to the staffs of brigade commanders.

PURCHASE AND SHIPMENT OF SUBSISTENCE SUPPLIES.

By the end of April, 1898, orders had been issued sending officers of the Regular Army to the places of rendezvous designated throughout

the country for mustering into the service of the United States the volunteer troops called out by the President's proclamation of April 23. Instructions were given to all commissary officers engaged in the subsistence of these volunteers, and supplies of necessary blank forms for facilitating the transaction of commissary business were sent them in profusion from the Commissary-General's Office.

Meanwhile depots of subsistence supplies had been established by the Commissary-General at the principal points of concentration of troops, and officers of skill and experience of the regular establishment had been assigned to duty at them, in order that the chief commissaries of corps and divisions and the commissaries of brigades might not be distracted with the business of purchasing and forwarding supplies to their commands, but would be able to give their undivided attention, under the orders of their commanding officers, to the duty of drawing and issuing rations to the enlisted men in the field who had been committed to their care.

Instructions had been given by the Commissary-General of Subsistence to the purchasing and depot commissaries in the cities of New York, Baltimore, Chicago, St. Louis, Kansas City, New Orleans, and San Francisco, who were all officers of the regular establishment and some of them of long service and great experience, to purchase and ship to the depots which had been located at the several points of concentration subsistence supplies in such quantities as to meet all current demands for the subsistence of troops and for keeping on hand at those places a surplus of at least sixty days' provisions for the entire commands there assembled.

The depot commissaries at the places of concentration were also authorized to call on the Commissary-General of Subsistence for all the supplies that they might consider to be needed in carrying out this plan. These instructions have applied to all places where large bodies of troops have been assembled, and under them there has been no difficulty in procuring and shipping all subsistence supplies needed. As a measure of precaution, the commissaries on duty in charge of depots near large bodies of troops in the eastern part of the United States have been required to make weekly reports to the Commissary-General of Subsistence of the number of complete rations on hand, in order that there might be no delay or failure of replenishment by the Subsistence Department.

THE SANTIAGO CAMPAIGN.

A very serious freight blockade at and in the neighborhood of Tampa in May and June, 1898, was caused by the celerity with which the troops and their supplies were concentrated at that place in preparation for the invasion of the Island of Cuba. This blockade was a matter of grave concern to the Subsistence Department, and it was only after the most peremptory orders of the Commissary-General of Subsistence to unload the cars and to hire warehouses, if necessary, that the officers of the department on the spot were enabled, with unflagging zeal and untiring energy, to so far extricate the department as to permit the taking by the Fifth Army Corps, when it sailed on June 14, a supply of rations sufficient to last the command of 16,000 enlisted men for four months, and the sending on June 26, 27, and 28 of further supplies.

The following is a list of the subsistence stores taken on transports

with the Fifth Army Corps when it sailed on June 14, consigned to the officer acting as depot commissary in Cuba, viz:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,000 men.
<i>Meat components.</i>			
Bacon.....pounds..	922, 888	2, 011, 701	125. 7
Beef:			
Fresh roast, 2-pound cans.....cans..	289, 544		
Corned, 2-pound cans.....do....	3, 500		
<i>Bread components.</i>			
Flour.....pounds..	953, 536	1, 940, 882	121. 3
Hard bread.....do....	1, 093, 295		
Baking powder.....do....	47, 760		
<i>Vegetable components.</i>			
Beans.....pounds..	232, 408	1, 946, 186	121. 6
Beans, baked, 3-pound cans.....cans..	480		
Rice.....pounds..	39, 380		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	127, 783	1, 198, 055	74. 9
Onions.....do....	4, 200		
Tomatoes, 3-pound cans.....cans..	457, 010		
<i>Coffee and sugar components.</i>			
Coffee, green.....pounds..	45, 060	2, 307, 475	144. 2
Coffee, roasted.....do....	148, 550		
Sugar.....do....	266, 308		
<i>Seasoning components.</i>			
Vinegar.....gallons..	17, 898	1, 789, 800	111. 8
Salt.....pounds..	91, 828	2, 295, 650	143. 5
Pepper.....do....	6, 900	2, 760, 000	172. 5
<i>Soap and candle components.</i>			
Soap.....pounds..	83, 400	2, 085, 000	130. 3
Candles.....do....	33, 785	2, 252, 338	140. 3
<i>Stores for sales to officers and enlisted men.</i>			
Plug tobacco.....pounds..	18, 000	.....	.....
Durham smoking tobacco.....do....	1, 000	.....	.....
Seal of North Carolina smoking tobacco.....do....	1, 000	.....	.....

Reinforcements for the Fifth Army Corps, to the extent of 6,400 enlisted men, sailed for Santiago June 22. On June 26, 27, and 28 the following subsistence stores were shipped from Tampa to the officer acting as depot commissary in Cuba, viz:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 8,400 men.
<i>Meat components.</i>			
Bacon.....pounds..	113, 308	504, 266	78. 8
Beef:			
Fresh roast, 2-pound cans.....cans..	123, 306		
Fresh roast, 6-pound cans.....do....	1, 380		
<i>Bread components.</i>			
Flour.....pounds..	271, 100	490, 603	76. 7
Hard bread.....do....	249, 625		
Baking powder.....do....	9, 924		
<i>Vegetable components.</i>			
Beans.....pounds..	45, 000	500, 000	78. 1
Rice.....do....	20, 000		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	278, 521	645, 858	100. 9
Onions.....do....	115, 418		
Tomatoes, 3-pound cans.....cans..	89, 968		
Tomatoes, gallon cans.....do....	7, 332		

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,000 men.
<i>Coffee and sugar components:</i>			
Coffee, green.....pounds..	21,750	498,125	77.8
Coffee, roasted.....do....	22,450		
Sugar.....do....	75,100		
<i>Seasoning components.</i>			
Vinegar.....gallons..	5,312	513,200	80.2
Salt.....pounds..	20,000	500,000	78.1
Pepper.....do....	1,250	500,000	78.1
<i>Soap and candle components.</i>			
Soap.....pounds..	20,040	501,000	78.3
Candles.....do....	7,520	501,333	78.3

There were shipped with the above stores to the chief commissary of the expedition in Cuba the following subsistence stores for sales to officers and enlisted men, viz:

Articles.	Weights or measures.	Articles.	Weights or measures.
Appricots:		Jam, blackberry, 1-pound cans..cans..	528
3 pound cans.....cans..	6,684	Tobacco:	
1-gallon cans.....do....	61	Plug, H. S.....pounds..	17,952
Crackers, soda.....pounds..	1,800	Plug, Climax.....do....	3,080
Peaches:		Smoking, Durham.....do....	500
3-pound cans.....cans..	17,054	Smoking, Seal of North Carolina, pounds.....pounds..	500
1-gallon cans.....do....	101	Soap, toilet, oatmeal.....cakes..	852
Pears:		Shoestrings, porpoise.....pairs..	1,600
3-pound cans.....do....	6,663	Towels, bath, linen.....number..	42
1-gallon cans.....do....	9		

There had been shipped from Mobile, Ala., with the Twentieth Infantry on June 4, 1898, the following subsistence stores, which, being left on shipboard at Daiquiri by the regiment, were partly unloaded at Siboney, and the remainder conveyed by the transport to Santiago after the capitulation:

Articles.	Weights or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon	pounds..	20, 758
Beef, fresh, roast.....	do.....	2, 111
<i>Bread components.</i>		
Flour	pounds..	23, 309
Hard bread.....	do.....	6, 661
Baking powder.....	do.....	848
<i>Fresh vegetable components.</i>		
Tomatoes, 3-pound cans	cans..	14, 642
<i>Coffee and sugar components.</i>		
Coffee, green	pounds..	3, 012
Sugar	do.....	4, 274
<i>Seasoning components.</i>		
Vinegar	gallons..	369
Salt.....	pounds..	1, 448
Pepper	do.....	93
<i>Soap and candle components.</i>		
Soap.....	pounds..	1, 500
Candles.....	do.....	560

During the month of June, 1898, the following subsistence stores were sent from New York and Chicago to the commissary of the provisional brigade, Second Army Corps, at Santiago, Cuba:

Articles.	Weights or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon	pounds..	127,501
Beef:		
Fresh roast, 2-pound cans	do..	135,144
Fresh roast, 6-pound cans	do..	
Corned, 4-pound cans	do..	
Corned, 14-pound cans	do..	
Salmon, 1-pound cans	do..	19,968
		63,000
<i>Bread components.</i>		
Flour	pounds..	141,900
Hard bread	do..	172,550
Baking powder	do..	3,276
<i>Vegetable components.</i>		
Beans	pounds..	40,500
Beans, baked, 3-pound cans	do..	20,304
<i>Fresh vegetable components.</i>		
Potatoes	pounds..	152,460
Onions	do..	37,163
Tomatoes, 3-pound cans and 1-gallon cans	do..	233,145
<i>Coffee and sugar components.</i>		
Coffee:		
Green	pounds..	27,143
Roasted	do..	8,400
Tea:		
Black, English breakfast	do..	36
Black, Oolong	do..	40
Sugar	do..	40,500
<i>Seasoning components.</i>		
Vinegar	gallons..	2,700
Salt, fine	pounds..	10,752
Pepper, black	do..	675
<i>Soap and candle components.</i>		
Soap, salt water	pounds..	10,800
Candles	do..	4,800
Candles, lantern	do..	3,200
<i>Articles for sales to officers and enlisted men.</i>		
Bacon, breakfast, 1-pound cans	cans..	3,756
Coffee:		
Extra Java	pounds..	781
Extra Mocha	do..	451
Corn, green, 2-pound cans	cans..	1,872
Crackers, soda	pounds..	154
Ham, deviled, 4-pound cans	cans..	720
Milk, 1-pound cans	do..	1,536
Pease, American, 2-pound cans	do..	384
Prunes	pounds..	375
Sardines, 4 boxes	boxes..	800
Soup:		
Beef, 1-quart cans	quarts..	384
Chicken, 1-quart cans	do..	384
Clam chowder, 1-quart cans	do..	144
Mock turtle, 1-quart cans	do..	144
Oxtail, 1-quart cans	do..	144
Sugar:		
Cutloaf	pounds..	824
Granulated	do..	682
Tongue, beef, 2-pound cans	cans..	180
Flavoring extracts:		
Lemon, 2-ounce bottles	bottles..	72
Vanilla, 2-ounce bottles	do..	72
Lime juice, quart bottles	do..	372
Mustard:		
Ground	pounds..	36
French	bottles..	36
Pickles:		
Chow chow, pint jars	jars..	72
Gherkins, pint jars	do..	72
Mixed, pint jars	do..	72

Articles.	Weights or measures.	Equivalent in rations.
<i>Articles for sales to officers and enlisted men—Continued.</i>		
Pipes:		
Corncob.....	150	.....
Brier, No. 4.....	75	.....
Tobacco:		
Plug.....	pounds.. 3,080	.....
Smoking, Durham.....	do. 750	.....
Soap, toilet:		
Oatmeal.....	cakes.. 900	.....
Glycerine.....	do. 1,080	.....
Cuticura.....	do. 720	.....
Yankee shaving.....	do. 800	.....
C. B.....	do. 504	.....
Basins, hand, tin.....	3,000	.....
Blacking, shoe, Mason's.....	boxes.. 360	.....
Brooms, whisk, large.....	349	.....
Brushes:		
Blacking, No. 1.....	285	.....
Hair, small.....	360	.....
Can openers.....	372	.....
Combs, dressing, rubber.....	372	.....
Matches, safety.....	boxes.. 9,360	.....
Paper, toilet.....	packages.. 3,800	.....
Shoestrings, porpoise.....	pairs.. 2,304	.....
Towels:		
Linen, damask.....	144	.....
Huck, No. 1.....	1,500	.....
Bath, cotton, No. 1.....	372	.....
Bath, cotton, No. 2.....	264	.....

During the month of July, 1898, the following subsistence stores were sent to the chief commissary of the expedition in Cuba, viz:

FROM NEW YORK, N. Y.

Articles.	Weights or measures.	Equivalent in rations.
<i>Bread components.</i>		
Corn meal, yellow.....	pounds.. 412,500	330,000
<i>Coffee and sugar components.</i>		
Coffee, green.....	pounds.. 90,600	960,000
Sugar.....	do. 150,000	1,000,000
<i>Seasoning components.</i>		
Salt.....	pounds.. 60,000	1,500,000
Pepper.....	do. 3,750	1,500,000
<i>Soap and candle components.</i>		
Soap.....	pounds.. 60,000	1,500,000

FROM TAMPA, FLA.

<i>Meat components.</i>			
Bacon.....	pounds..	667,216	} 968,841
Fresh beef, prepared.....	do.	5,000	
Corned beef, 2-pound cans.....	cans.	25,000	
Codfish.....	pounds..	24,984	
<i>Bread components.</i>			
Flour.....	pounds..	385,400	} 772,908
Hard bread.....	do.	306,325	
Corn meal.....	do.	177,500	
Yeast.....	do.	500	
<i>Fresh vegetable components.</i>			
Potatoes.....	pounds..	475,421	475,421
Onions.....	do.	63,083	63,083
Beans, baked, 3-pound cans.....	cans.	37,536	250,240

Articles.	Weights or measures.	Equivalent in rations.
<i>Coffee and sugar components.</i>		
Coffee, roasted.....pounds..	88,080	478,878
Tea.....do..	804	40,360
Sugar.....do..	87,400	249,332
<i>Soap and candle components.</i>		
Soap.....pounds..	15,000	375,000
Matches (safety).....boxes..	77,760	
<i>Stores for sales to officers and enlisted men.</i>		
Bacon, breakfast.....pounds..	2,000	
Corn, green, 2-pound cans.....cans..	24,096	
Crackers:		
Soda.....pounds..	1,820	
Ginger.....do..	480	
Ham:		
Deviled, $\frac{1}{2}$ -pound cans.....cans..	4,752	
Sugar-cured.....pounds..	2,000	
Milk, 1-pound cans.....cans..	30,000	
Peaches, 2-pound cans.....do..	12,000	
Lime juice.....bottles..	4,500	
Mustard.....do..	416	
Pickles, mixed.....jars..	2,912	
Paper, toilet.....packages..	12,500	
Pears, 2-pound cans.....cans..	11,896	
Pease, green, canned, 1-pound cans.....do..	24,000	
Prunes.....pounds..	5,000	
Sardines:		
$\frac{1}{2}$ -pound boxes.....boxes..	2,000	
$\frac{1}{4}$ -pound boxes.....do..	2,000	
Soups, quart cans.....cans..	16,000	
Flavoring extracts.....bottles..	1,008	
Ginger, ground.....pounds..	40	
Sauce, table, Worcestershire.....bottles..	504	
Cigars.....	50,000	
Tobacco:		
Plug.....pounds..	27,000	
Smoking.....do..	45,000	

Under contract entered into July 1, 1898, between the Commissary-General of Subsistence and Swift & Co., of Chicago, Ill., a cargo of refrigerated beef reached Santiago on July 21, 1898, the day after the port was opened for navigation, and was most acceptable to the troops and hospitals there. Supplies of this beef have since been furnished in plentiful quantities to meet the needs at that place.

On September 27, 1898, the purchasing and depot commissary who had been ordered to Santiago on August 1, 1898, reported the following ration articles on hand in his depot, viz:

Articles.	Weight or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon.....		808,000
Beef, roast, canned.....		900,000
<i>Bread components.</i>		
Flour.....		808,000
Hard bread.....		700,000
Corn meal.....		1,100,000
Yeast.....		1,000,000
<i>Vegetable components.</i>		
Beans.....		1,000,000
Rice.....		700,000
<i>Fresh vegetable component.</i>		
Tomatoes.....		800,000
<i>Coffee and sugar components.</i>		
Coffee.....		2,000,000
Coffee, roasted.....		1,800,000
Sugar.....		2,000,000

Articles.	Weights or measures.	Equivalent in rations.
<i>Seasoning components.</i>		
Vinegar.....		2,000,000
Salt.....		1,800,000
Pepper.....		2,600,000
<i>Soap and candle components.</i>		
Soap.....		2,000,000
Candles.....		2,500,000

No great quantities of subsistence stores of the above kinds had been shipped to Cuba after the withdrawal of the Fifth Army Corps from that island. The garrison at Santiago at present consists of seven regiments.

It will thus be seen that all due diligence was used by the Commissary-General of Subsistence in placing subsistence stores within reach of the troops operating against Santiago. Upon landing in Cuba these stores of the expedition were subject to the orders of the general commanding, who was in paramount control of the military operations in that quarter. The relations of the commanding general of the forces and of the staff officers on duty under him to the supplies placed at their disposal are sufficiently defined by laws, regulations, and orders. The degree of diligence and efficiency with which all the subsistence officers of the staff performed their duties in supplying the troops in the immediate theater of operations was primarily within the observation and control of the general commanding. On the eve of setting out for Santiago the commanding general Fifth Army Corps issued the following order:

GENERAL ORDERS, }
No. 7.

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., June 2, 1898.

The following is published for the information and guidance of this command:

Troops will be rationed every ten days.

To accomplish this, regiments will consolidate company ration returns, brigade commissaries will in turn consolidate ration returns of the regiments of their brigades, and having obtained the approval of the chief commissary of the division to which they belong, will draw from the depot commissary in bulk, and issue to the different companies of their brigades.

Separate regiments, companies, detachments, field hospitals, or other organizations not brigaded will draw direct from the depot commissary in the way indicated for brigades.

The consolidated ration return of the brigade commissary, approved by the chief commissary, upon which issues are made, will be a proper voucher for the depot commissary.

Brigade commissaries will also provide themselves with small quantities of stores for sales, but officers and men should, as much as possible, provide for their wants from the depot.

To facilitate this work a field tool chest will be issued to each brigade, also paulins by the depot, and commissary sergeants assigned as far as practicable.

The corps stationed at Jacksonville and thereabouts will draw from the depot commissary at Jacksonville, and the corps stationed here and hereabouts from the depot commissary here.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

If, with abundance of provisions ashore and afloat at the base of supplies in Cuba, the enlisted men were at any time hungry, not the Commissary-General of Subsistence, nor the entire personnel of the Subsistence Department, was at fault. A glimpse of the difficulties encountered on landing in Cuba is given by the chief commissary of the

expedition in an official letter to the Commissary-General of Subsistence, dated at Siboney, Cuba, July 7, 1898, as follows:

You are already acquainted with the loading at Tampa that I hoped to straighten out when we unloaded somewhere on the island, but the opportunity has not come, although we landed on the 22d of June. At Daiquiri first, then here, the troops were run ashore without rations, and I was directed to open depots, 200,000 rations at each, and feed soldiers, civilian employees, Cubans, etc. To do this was simply impossible, but not so to try, and we pegged away night and day meeting demands.

At Daiquiri there is a pier to which our transports could not go, but I took a lighter, transferred from transport thereto, ran in, and unloaded. Succeeded in obtaining not more than about 60,000 rations on shore and these were issued rapidly, but we kept right along. Siboney, being about 7 miles nearer to Santiago, with a bad road, became the base, although furnishing no advantage beyond propinquity, as it was in the open, no landing, everything depending on the calm of the surf, which was uncertain. Here I would proceed as before, running in the lighter as far as I could, then transferring stores into a small boat, about 10 tons, borrowed from the Navy, and pull ashore by hand. To supply an army in this way was severe, but when new regiments came, landing without a ration and increasing my work, the job looked insurmountable. I worked day and night, men getting sick, stevedores striking, new hands insufficient and inefficient, supplemented by rough sea, until I got down to 1,000 rations ashore. I got through, but the Lord knows how. Now to business.

The commanding general directed that hard bread, roasted coffee, sugar, and meat be the only components furnished. I added soap and some tomatoes. This of course leaves us with a lot of spare stuff—as vinegar, candles, pepper, flour—thus making confusion more confused. Unloading and straightening out is out of the question without Santiago, and I have an idea that even if we had it I wouldn't have time to do so. Hence, to meet such conditions, quite probable to me, I have to request that you cause to be sent the stores mentioned in telegram of yesterday and in the manner, too, as when our stores are with troops they too often help themselves, and here at least go ashore, leaving their camp and garrison, their personal and official baggage, and whatever rations, forage, etc., on hand scattered all over the ship, so that one has to wait a day or two to find what he wants, and this I have no time to do. We should have transports consigned to us for duty, then we could handle our stores in a businesslike way.

Your Department has been praised plentifully. I am well.

Please send me without delay a few more commissary sergeants. This, however, I'll telegraph to-day.

It is evident from the foregoing statements that the supplies of subsistence stores shipped for the use of the Army in Cuba have been at all times in excess of immediate needs. Besides being available for our own troops, they afforded relief to the Cuban army and to the destitute population which abandoned the city of Santiago when preparations for its destruction had been made. The official returns from Cuba, showing in detail the issues made to these several classes of persons and others contemplated by law, have not yet been received, and there is not in this office any information throwing light on the subject of the provisioning of the transports which brought the Army back to Montauk Point further than that there was an abundance of subsistence stores in Santiago and vicinity.

DIET FOR THE SICK.

On May 17, 1898, on the request of the Surgeon-General and the recommendation of the Commissary-General of Subsistence, the Secretary of War granted 60 cents per day per man for subsistence of the sick in hospital at Key West, Fla., payable from the appropriation for subsistence of the Army.

On June 16, 1898, on the recommendation of the Surgeon-General and Commissary-General of Subsistence, the Secretary of War approved the allowance of 60 cents per man per day to patients carried upon the hospital train, payable from the appropriation for subsistence of the Army.

August 2, 1898, on the application of the chief surgeon, Seventh

Army Corps, for the allowance of two rations each to soldiers at recuperation camp at Pablo Beach, Fla., the Commissary-General recommended, and the Secretary of War approved on August 4, an allowance at the rate of 60 cents per man per day to the patients in the hospital camp, payable from the appropriation for subsistence of the Army.

There was doubtless little in the nature of special food for the diet of the sick to be obtained in the midst of or in the neighborhood of military operations in Cuba, and little opportunity occurred, in the short time between the landing of the troops in that island and the embarkation for home, for the accumulation there of hospital funds for the purchase by the Medical Department of special supplies needed for the sick, even had there been a market accessible.

On a telegram to the Adjutant-General from the commanding general of the Fifth Army Corps, dated at Santiago, August 2, 1898, stating that there were no hospital funds at Santiago, and requesting that \$2,000 be supplied by the Medical Department to the medical officer in charge there for the purchase of delicacies for the sick (in that instance chickens, which were there from the North), the Commissary-General of Subsistence recommended to the Secretary of War that the rations of the sick in hospital at Santiago be commuted at 75 cents per day. This recommendation was approved by the Secretary of War for the troops serving in Cuba. The Secretary had generously manifested a willingness to pay the amount called for from his own private means. A telegram was at once sent by the Commissary-General of Subsistence to the chief commissary at Santiago informing him that the Secretary of War had approved the Commissary-General's recommendation that rations of the sick in hospital at Santiago be commuted at 75 cents per day, stating that it would enable the hospitals to buy all the chickens or other things necessary, and directing him to show the telegram immediately to the commanding general.

Notwithstanding this telegram, intended as a reply to the telegram of the commanding general, medical officers who returned on the transports loaded with sick troops had evidently to rely almost exclusively, if not entirely, on the ration of the soldier for the diet of the sick during the passage.

On August 6 the Surgeon-General requested that the rations of sick and wounded men on hospital transports be commuted at 60 cents per day, to enable the medical officers to procure light diet for their patients, and this request was favorably recommended by the Commissary-General of Subsistence to the Secretary of War on August 7, payable from the appropriation for the subsistence of the Army.

On August 9, 1898, the following letter was addressed to the Adjutant-General:

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE.

August 9, 1898.

SIR: I inclose herewith draft of a general order regulating and systematizing the matter of subsisting the sick and wounded enlisted men in certain hospitals, hospital trains, and hospital transports, which I request may be approved by the honorable the Secretary of War and promulgated for the information and guidance of all concerned.

Very respectfully,

CHAS. P. EAGAN,
Commissary-General of Subsistence.

THE ADJUTANT-GENERAL OF THE ARMY.

The draft which was inclosed was published as General Order No. 116, as follows:

GENERAL ORDERS, }
No. 116. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 10, 1898.

The following is published to the Army for the information and guidance of all concerned:

Medical officers in charge of general hospitals, hospital trains, hospital transports, and the hospital at the camp at Pablo Beach, Fla., and at the hospital at the camp at Montauk Point, New York, will be allowed to expend from the appropriation "Subsistence of the Army," for the diet of the enlisted men undergoing medical treatment under their charge, at the rate of not exceeding 60 cents per man per day for the period each is undergoing treatment. The allowance so made will constitute a special fund in the hands of the medical officer in charge, from which will be purchased the entire diet of the enlisted men while undergoing medical treatment. These purchases will be restricted to articles of food, solid and liquid, the quantities and varieties of which will be determined by the medical officer in charge.

Chief commissaries of departments will transfer to medical officers in charge such subsistence funds as may be estimated for by the latter for carrying out the objects of this order.

There will be rendered monthly to the Commissary-General of Subsistence by the medical officers concerned regular accounts current, supported by vouchers, showing the application of these funds, and regular returns of subsistence stores, accounting for the articles of food purchased and issued. There will be submitted with each monthly return a tabular statement showing the number of patients present during the month as shown by the hospital records, and the money value of the articles issued to and consumed by them. The statement will be so arranged as to show the actual cost of subsistence per man per day for the month.

Transfers of subsistence funds from one hospital, train, or transport to another without authority of the commissary-general of subsistence, and the purchase from subsistence funds of articles other than food intended for the diet of the sick, are prohibited.

This order will go into effect at once, and all surplus funds in the hands of medical officers in charge, arising from the commutation of rations heretofore allowed to enlisted men undergoing treatment under their charge, will be taken up on their accounts current for the month of August, and all articles purchased from such commutation remaining on hand unconsumed on receipt hereof will be taken up on their returns of subsistence stores for that month.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

This order was afterwards extended to include all field and post hospitals, and ample provision was made for furloughing convalescents and paying them commutation of rations while traveling to and from their homes.

MONTAUK.

The army in Cuba had, by the end of July, 1898, become so afflicted with malarial fevers that the Secretary of War ordered all the troops that took part in the Santiago campaign to be returned to the United States and taken to Montauk Point, Long Island. On August 3, the cavalry detachment and recruits at Tampa, Fla., of all the regiments then in Cuba, were first ordered to Montauk Point. On August 4, the Commissary-General of Subsistence directed a subsistence officer of large experience, on duty in New York City, to proceed in person to Montauk Point and make complete report as to the probable facilities that would be afforded there for a subsistence depot for supplying the Fifth Army Corps; as to the best manner of arranging for the daily supply of fresh beef, fresh bread and vegetables, and whether they could best be obtained in New York. He was directed to report what, if any, steps had been taken to furnish a subsistence warehouse, and where, in his judgment, the subsistence warehouse or warehouses should be located; all possible information being desired as quickly as it could be gotten, as the first detachment of the Fifth Army Corps had already left Cuba.

This officer left for Montauk at 3.30 o'clock that afternoon, and reported, on his return on the morning of August 5, that the storehouses should be at the station, $1\frac{1}{2}$ miles from the camp ground; that the railroad was rushing side tracks; that he had not seen the Quartermaster's representative, but had telegraphed the president of the railroad that the Subsistence Department required three storehouses 30 by 100 feet at once; that he had advertised for beef, bread daily, and vegetables every five days, for delivery at any place or places within 3 miles of Montauk as desired by the depot commissary; that he would ship 20,000 rations August 8 and 50,000 on August 11, sending beef, bread, and vegetables when needed; that he did not expect storehouses to be completed for at least a week, probably longer, but would forward stores so there would be an abundance without congestion. He subsequently reported (same day) that the contracts for building the subsistence storehouses had been let that day, to be completed in eight days.

On August 3 an officer of the Subsistence Department at Jacksonville, Fla., was requested to be ordered to duty at Montauk Point, and the order was telegraphed him August 7, 1898.

A subsistence officer then in Washington, and a brigade commissary also there, who had been wounded at Santiago and who was willing to surrender the unexpired portion of his sick leave, were sent, the former reporting at Montauk August 8, and the latter August 10. The same officer from New York, who had visited the camp August 4, was also directed to proceed there for consultation and to place the officer who arrived there August 8 in charge and instruct him to do whatever might be necessary. The commanding officer of the camp was informed by telegraph of these dispositions on August 8, and was requested to have the Quartermaster's Department turn over a tent for each company, regiment, brigade, division, or corps for sheltering subsistence stores. The officer from Jacksonville left that city on August 9.

On August 10, the officer who visited Montauk August 8, reported that he had seen the commanding general of the camp, and, he thought, arranged matters satisfactorily; that 20,000 rations had arrived the morning of the 10th; that storehouses would be ready on August 13; that the commanding general had given orders to have tents furnished for shelter of subsistence supplies of companies, regiments, and brigades; and that stores for sales would be shipped early the next week, or as soon as preparations had been made for handling them. Subsequently, on the same day, he telegraphed that the carpenters on the subsistence storehouse were taken off to build the hospital buildings, and that he had telegraphed the subsistence officer in temporary charge to "keep stores in car and use hay platform to issue from; next to hospital, subsistence storehouse is most important, and no other buildings should have precedence over it," and to consult with the general commanding.

On August 12 orders were given from the Adjutant-General's Office to stop everything south of Washington that was en route to Montauk Point; and, in answer to an inquiry from the Commissary-General on that day, the subsistence officer at New York who had visited the camp reported that an abundance of rations, including fresh meat, bread, and vegetables, had been received thus far and would continue unless contractors broke down, which was not anticipated; that carpenters were rushing the work on building, and that the commanding general at the camp had said that the commissary building should have precedence over all but the hospital. The officer from Jacksonville assumed duty as depot commissary at the camp on August 12, and reported 50,000 rations in cars on the track. On August 13 he inquired if there was an order extant authorizing additional expenditure of 50 cents per man

per day for sick in camp, and was referred same day to General Order No. 116, dated August 10, 1898, which provided that 60 cents per man per day might be expended, and which directed the surgeon in charge to make application to the chief commissary for funds for the purpose.

The first shipload of troops of the Fifth Army Corps arrived off Camp Wikoff, Montauk Point, from Santiago, on Saturday night, August 13, and were landed on August 14. Four other transports arrived August 14, and the landing of their troops was begun on August 15. These transports were thereafter followed at short intervals by other arrivals.

Maj. Gen. Joseph Wheeler landed from Santiago on August 15 at the camp, and proceeded to Washington, returning to Camp Wikoff and assuming command on August 17.

At the request of the Commissary-General of Subsistence of August 18, the officer of the Subsistence Department who had been chief commissary of the Fifth Corps in Cuba, proceeded to Camp Wikoff on the morning of August 19, and reported from there, August 20, that Generals Young and Wheeler insisted on his remaining a week; that he informed them of the Commissary-General's wishes, and that General Young telegraphed to the Commissary-General, and General Wheeler to the Adjutant-General, on the subject. General Young did telegraph August 19, to the Commissary-General, stating that the presence of the officer for a week was essential. General Wheeler telegraphed same day to the Adjutant-General specially requesting that the officer be ordered that day to be chief commissary there, if not permanently, until organization was perfected. Request for an order of assignment was made August 20, to be transmitted by telegraph, and General Young was so informed. Subsequently, on the same day at 6.05 p. m., the depot commissary at the camp telegraphed the Commissary-General that General Wheeler had requested that he—the depot commissary—be authorized to furnish what supplies he should designate, the list of articles to be named by the chief surgeon, as the men of his command needed other articles of food than those in the ration, being in a weakened condition and needing nourishing food immediately.

On August 21, the Commissary-General, knowing that he had called the depot commissary's attention to the provision that had been made by General Order No. 116, August 10, for allowing medical officers to expend 60 cents per man per day from subsistence funds for the sick in hospital, and not knowing any reason for General Wheeler's assuming the duties of the Commissary-General in the matter of ordering disbursements of subsistence funds to be made for any purpose, telegraphed General Wheeler as follows:

Your request to Major Duval that supplies be designated by chief surgeon, other than articles of food now authorized, be purchased by him, received. I have to state that the law controls and regulates every purchase of this Department. To meet precisely such a case as you designate, General Order No. 116, dated August 10, was issued; and I am surprised that your surgeons have not availed themselves of the benefit of that order; wherein you will see that 60 cents per day is allowed for each sick man, to be expended for such articles as the surgeons in charge may designate, they to purchase the articles. Please have them act on this order at once and you will find it fully covers your views. A copy of the order will be mailed you to-day, to be sure that you have it.

On the same day the Commissary-General telegraphed the depot commissary as follows:

Your telegram covering General Wheeler's request for other articles than those of the ration has been answered by me to-day, inviting attention to General Order No. 116, which fully covers the necessities of the case. If you have not received General Order No. 116 let me know, and it will be mailed you immediately.

On the same day the depot commissary replied, quoting a telegram which the Adjutant-General had sent to General Wheeler, and a copy

of which had been sent by General Wheeler to him, and stating that on the strength of that telegram he had acted, and had ordered a large supply of stores from the purchasing commissary at New York. On the same day (August 21) the Adjutant-General furnished the Commissary-General of Subsistence with copies of the correspondence between General Wheeler and himself, which was that referred to by the depot commissary. On the same day (August 21) the Adjutant-General telegraphed the commanding general of the camp at Montauk as follows:

Having reference to telegraphic correspondence of yesterday as to the purchase of articles outside of the service ration for the troops at Montauk Point, the Secretary of War desires me to invite your attention to a telegram sent from the Commissary-General to General Wheeler. It is thought the plan outlined by the Commissary-General will meet the purposes you have in view better than any other way. Your views, however, are invited.

On August 22 the depot commissary at the camp was directed by the Commissary-General to make requisitions on the Commissary-General of Subsistence, and not direct on the purchasing commissary at New York, for such stores as he needed, except in case of rations. On the same day the following instructions from the Commissary-General were sent him by telegraph:

You are assigned to duty as purchasing and depot commissary at Montauk Point, and as such are under the orders of the Secretary of War and myself. You will not call upon anyone for any unauthorized articles of subsistence or for sales without first referring to this office. The order sent General Wheeler by the Adjutant-General has been revoked. Ascertain if the surgeons can not act upon General Order No. 116 without delay. Its enforcement and proper execution are of greater value than the illegal purchase of stores not authorized to be purchased by the Subsistence Department by law. Communicate with the surgeons and inform me promptly of their action, to the end that the real comfort of the soldiers and the supply of such articles as the surgeon in charge may deem necessary shall be furnished at once. It is presumed the medical purveyor in New York can expeditiously and promptly furnish the articles required for by the surgeons, the Subsistence Department furnishing the money, as contemplated by the general order herein referred to. Communicate with General Wheeler, whose wishes I wish to carry out to the utmost of my ability without violating law. Answer and report action.

He reported the same day as follows:

Have conferred with General Wheeler and with chief surgeon. Chief surgeon stated that articles are not necessary, upon which General Wheeler directed me to have request on Woodruff canceled, which I did.

Accordingly, the Commissary-General of Subsistence telegraphed General Wheeler on same day as follows:

Weston has been assigned as chief commissary to the troops of your command; order mailed 20th instant. Will you please direct the surgeons to call for the money immediately, to procure such special stores as your surgeons may want. I am heartily in accord with you to provide the sick with such stores as are necessary to their condition. The surgeons should be made to perform their duty to the sick in this respect. The money is ready, and they should be forced to do their duty under General Order No. 116.

On August 24 the Secretary of War, who was himself at Montauk on that day, telegraphed the Adjutant-General as follows:

I have seen General Egan's telegram to Duval, commissary, calling attention to General Order No. 116. Notwithstanding, you will instruct him to fill Duval's requisition of August 21 on Woodruff, and any similar requisitions General Wheeler authorizes. It is absolutely essential.

Copy of the above telegram of the Secretary of War was furnished the Commissary-General of Subsistence by the Adjutant-General on August 25, on receipt of which a telegram was sent by the Commissary-General of Subsistence to the chief commissary of the camp, the portion relating to the purchase of food for the sick being as follows:

Meantime, the most important thing to do, now that you are there, is the question of providing for the troops. General Order 116 covers any and every soldier that the

surgeons consider should receive other food than the prescribed army ration. The failure of the surgeons to avail themselves of this order up to the present time is a matter of serious importance, and if continued I shall deem it my duty to appeal to the law and all that that implies, and hold each and everyone responsible for any shortcomings due to the sick being neglected by reason of the nonobservance of that order. That the order has not been carried out by the general commanding and the surgeons is entirely beyond my comprehension. The failure to carry out the order is, to me, neither more nor less than a disobedience of orders, and I shall most certainly hold each and every person concerned responsible for them. The condition stated by you, "that there are not any real men here," makes it all the more serious that the surgeons have not enforced that order, have not called for the money which is at their disposal—60 cents a day for feeding each and everyone of them with the class of food that they should have. You state that at present no men stood more in need of delicacies than the men there. Then why not take the 60 cents and feed them as they should be fed? It looks to me like criminal neglect, and somebody, and everybody if necessary, will be held to an accountability for not using the money provided. Depend upon it, I shall hold every man accountable for a failure to feed the men with the money which this Department has provided. Nothing on earth shall prevent my insisting that justice shall be done in this respect. I have ordered Woodruff to supply the stores called for by General Wheeler and that may hereafter be called for. These orders call for the expenditure of subsistence money not authorized by law. This condition is forced upon the Secretary of War and upon myself, and I most emphatically state that it is because the provisions of General Order 116 have not been carried out, and whoever is or may be responsible for this thing shall be held by me to the utmost accountability, and the people at large will hold them responsible for their failure to take the money lying there under their hands for the care of the sick, which they seem not to have done so far. You are on the ground; you are the senior officer after myself, and I require from you at once an official report upon which official action can be taken by the President, by the Secretary of War, and by the country at large, as to why this money provided for the sick has not been used and utilized.

The first requisition on the chief commissary of the Department of the East from surgeons at Montauk for funds, under General Order No. 116, was dated August 25, received August 26, and check drawn same day.

Under the authority of the Secretary of War of August 24 there have been purchased from subsistence funds by officers of the Subsistence Department and issued gratuitously to the troops at Montauk up to September 30, in addition to the ration and to the 60 cents per day provided by General Order 116, the following quantities of articles:

Ice	pounds..	1, 085, 200
Milk	gallons..	54, 860
Halibut	pounds..	3, 000
Lima beans	do.....	47, 047
Tea	do.....	250
Apples (canned)	3-pound cans..	6, 020
Do	gallon cans..	1, 774
Apples (evaporated)	pounds..	21, 550
Apricots (evaporated)	do.....	14, 500
Butter	do.....	34, 799
Corn (canned).....	cans..	13, 889
Cocoa	pounds..	1, 080
Soda crackers	do.....	9, 950
Ham (sugar-cured)	do.....	19, 927
Evaporated cream	cans..	31, 140
Oatmeal.....	do.....	31, 985
Peaches (evaporated).....	do.....	18, 025
Peaches (canned).....	do.....	14, 973
Pears (canned).....	do.....	14, 869
Pease (canned).....	do.....	16, 128
Prunes	pounds..	9, 925
Beef soup	cans..	7, 500
Chicken soup	do.....	11, 490
Pickles	gallons..	7, 100
Oranges	crates..	300
Lemons	do.....	150
Eggs.....	dozens..	53, 070

The following correspondence is self-explanatory:

HEADQUARTERS UNITED STATES FORCES,
Camp Wikoff, August 28, 1898.

DEAR GENERAL: I have seen a reported interview with myself in the " * * * [newspaper] " * * * of yesterday's date, which does you an injustice.

I took the greatest pains to explain to the reporter that the delay in filling orders for supplies was due to the fact that you thought General Orders No. 116 would cover the whole ground, you at that time not knowing that there were a good many sick in camp who could not be provided for under that order.

I make this explanation to you because I desire you to know that the interview as reported is not correct.

Very respectfully,

JOS. WHEELER,
Major-General, U. S. V., Commanding.

Gen. CHARLES P. EAGAN,
Commissary-General, Washington, D. C.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington, August 30, 1898.

DEAR GENERAL: I have both the honor and pleasure of acknowledging receipt of your letter of August 28, and thank you for the same.

I was animated throughout by the strongest desire to strengthen your hands in caring for the sick, and in my opinion the General Order 116 would cover those not able to eat the rations, but who might thereby be considered sick and come under the provisions of that order. I was solely animated with the wish to provide them the delicacies contemplated without obliging anyone to expend money not authorized by law. I have never understood that there was any money to meet purchases not contemplated by law. Had I understood this none of this misunderstanding could have arisen; none can regret it more than myself. For, from the first to the present and the future, my sole desire is to aid you and every other commanding officer in caring for the troops to the utmost.

Very respectfully, yours,

CHAS. P. EAGAN,
Commissary-General.

Maj. Gen. JOSEPH WHEELER,
Commanding U. S. Forces, Camp Wikoff, Montauk Point, Long Island, N. Y.

PORTO RICO.

The strength of the army dispatched to Porto Rico in July and August, 1898, was 641 officers and 16,332 enlisted men. The following quantities of subsistence stores were shipped from New York and Chicago to that island in July and August, 1898:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,332 men.
<i>Meat components.</i>			
Bacon.....pounds..	447,178	1,617,780	99+
Beef:			
Fresh roast, 1-pound cans.....cans..	984,084		
Corned, 2-pound cans.....do....	34,884		
Salmon, 1-pound cans.....do....	140,016		
Brawn:			
1-pound cans.....do....	836		
2-pound cans.....do....	228		
6-pound cans.....do....	60		
14-pound cans.....do....	6		
<i>Bread components.</i>			
Flour.....pounds..	787,528	2,201,945	134.9
Hard bread.....do....	1,501,920		
Yeast.....do....	4,580		
<i>Vegetable components.</i>			
Beans.....pounds..	106,341	1,885,580	115.4
Beans, baked, 3-pound cans.....cans..	71,496		
Rice.....pounds..	70,000		
<i>Fresh vegetable components.</i>			
Tomatoes, 3-pound cans.....cans..	100,008	225,018	13.7

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,332 men.
<i>Coffee and sugar components.</i>			
Coffee:			
Green.....pounds..	100,053	2,907,917	178
Roasted.....do..	152,591		
Sugar.....do..	360,717	2,404,780	147.2
<i>Seasoning components.</i>			
Vinegar.....gallons..	9,965	996,500	61
Salt.....pounds..	90,120	2,253,000	137.9
Pepper.....do..	10,750	4,300,000	263
<i>Soap and candle components.</i>			
Soap.....pounds..	56,040	1,401,200	85.7
Candles.....do..	21,005	1,400,333	85.7
<i>Stores for sales to officers and enlisted men.</i>			
Apples, 3-pound cans.....cans..	2,400		
Coffee, extra Java and Mocha.....pounds..	15,449		
Corn, green, 2-pound cans.....cans..	24,000		
Crackers, soda.....pounds..	10,080		
Gelatin, 2-ounce packages.....packages..	1,008		
Ham:			
Deviled, 1-pound cans.....cans..	20,000		
Sugar-cured.....pounds..	1,000		
Macaroni.....do..	1,000		
Milk, 1-pound cans.....cans..	30,048		
Peaches, 3-pound cans.....do..	4,803		
Pears, 2-pound cans.....do..	4,752		
Peas, American.....do..	23,400		
Prunes.....pounds..	6,000		
Sardines:			
1-pound boxes.....boxes..	6,000		
1-pound boxes.....do..	3,000		
Soups, assorted, quart cans.....cans..	19,984		
Starch.....pounds..	3,000		
Sugar:			
Cut loaf.....do..	2,042		
Granulated.....do..	10,257		
Tongue, 2-pound cans.....do..	5,004		
Flavoring extracts.....bottles..	1,800		
Ginger, ground.....pounds..	102		
Jams and jellies, 2-pound cans.....cans..	1,816		
Lime juice.....bottles..	5,004		
Mustard:			
Ground.....pounds..	200		
French.....bottles..	1,200		
Olive oil, quart bottles.....do..	4,800		
Pickles, assorted, jars, pints.....jars..	10,800		
Sauce, Worcestershire.....bottles..	1,008		
Cigars, plantation.....	60,000		
Pipes:			
Brier wood.....	10,000		
Corn cob.....	20,000		
Tobacco:			
Plug.....pounds..	20,020		
Smoking.....do..	80,000		
Soap, toilet, assorted.....do..	50,160		
Buttons, trousers.....dozen..	144		
Needlebooks, with needles.....books..	720		
Pins.....papers..	720		
Thread, white and black.....spools..	1,440		
Envelopes, note.....	14,200		
Paper, note.....quires..	2,500		
Pencils, indelible.....	15,000		
Penholders.....	144		
Pens.....gross..	12		
Hand basins.....	15,000		
Shoe blacking.....boxes..	792		
Brooms, whisk.....	5,040		
Brushes:			
Blacking.....	1,008		
Hair.....	5,000		
Can openers.....	14,304		
Combs, pocket.....	5,040		
Handkerchiefs, linen.....	1,728		
Shoe strings.....	20,016		
Towels:			
Linen.....	6,150		
Huckaback.....	20,808		
Bath.....	7,341		
Toweling.....yards..	6,000		
Matches, safety.....boxes..	20,880		
Paper, toilet.....packages..	26,800		

In addition to the foregoing, contract was made with Swift & Co., of Chicago, Ill., for furnishing refrigerated beef for the entire command in the island.

HAWAIIAN ISLANDS.

The command sent to the Hawaiian Islands in August, 1898, consisted of 58 officers and 1,605 enlisted men. The following quantities of subsistence stores were shipped to the purchasing and depot commissary at Honolulu in August, 1898:

Articles.	Weights or meas- ures.	Equivalent in rations.	Number of days' supply for 1,605 men.
<i>Meat components.</i>			
Pork.....pounds..	11,600	33,828	21
Bacon.....do.....	3,998		
Beef:			
Corned, 2-pound cans.....cans..	600		
Fresh roasted, 1-pound cans.....do.....	11,520		
Salmon, 1-pound cans.....do.....	15,792		
Mackerel, pickled.....kits..	5		
Codfish, dried.....pounds..	80		
<i>Bread components.</i>			
Flour.....pounds..	151,800	149,128	92.9
Hard bread.....do.....	14,400		
Corn meal.....do.....	300		
Baking powder.....do.....	5,828		
<i>Vegetable components.</i>			
Beans.....pounds..	17,300	175,028	109
1-pound cans.....cans..	96		
2-pound cans.....do.....	1,200		
Rice.....pounds..	5,100		
Peas.....do.....	100		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	26,474	61,802	38.5
Onions.....do.....	10,848		
Tomatoes, 2½-pound cans.....cans..	12,240		
<i>Coffee and sugar components.</i>			
Coffee:		210,560	131
Green.....pounds..	10,806		
Roasted.....do.....	4,800	153,323	95.5
Sugar.....do.....	23,000		
Tea.....do.....	180	9,000	5.6
Sirup:			
Maple.....gallons..	78	3,900	2.4
Cane.....do.....	24	1,200	.75
<i>Seasoning components.</i>			
Vinegar.....gallons..	1,560	156,000	97.2
Salt.....pounds..	6,198	154,950	95.5
Pepper.....do.....	425	170,000	106
<i>Soap and candle components.</i>			
Soap.....pounds..	7,080	177,000	110
Candles.....do.....	3,520	117,333	73
Soap, salt water.....do.....	1,600	40,000	24.9
<i>Stores for sales to officers and enlisted men.</i>			
Apples:			
2½-pound cans.....cans..	24		
Evaporated.....pounds..	200		
Apricots, 2½-pound cans.....cans..	480		
Bacon, breakfast.....pounds..	774		
Butter.....do.....	216		
Cheese:			
American.....do.....	149		
Edam.....do.....	12		
Chocolate, plain and Vanilla.....do.....	174		
Coffee, extra Java and Mocha.....do.....	816		
Corn, green, 2-pound cans.....cans..	720		
Crabs, pony cans.....do.....	96		

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 1,605 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Crackers, assorted	pounds..	1, 270	.....
Gelatin, 2-ounce packages	packages..	72	.....
Hominy, fine	pounds..	80	.....
Ham:			
Deviled, 1-pound cans	cans..	240	.....
Sugar cured	pounds..	202	.....
Lard	do.	280	.....
Lobster, 1-pound cans	cans..	144	.....
Macaroni	pounds..	100	.....
Milk, 1-pound cans	cans..	2, 880	.....
Mushrooms, 1-pound cans	do.	200	.....
Oatmeal, rolled	pounds..	400	.....
Oysters, 2-pound cans	cans..	96	.....
Peaches:			
2½-pound cans	do.	1, 200	.....
Evaporated	pounds..	150	.....
Pears, 2½-pound cans	cans..	480	.....
Peas, green, 1-pound cans	do.	1, 120	.....
Pigs' feet, 2-pound cans	do.	48	.....
Pineapples, 2-pound cans	do.	48	.....
Preserves, damson, 2-pound cans	do.	240	.....
Prunes	pounds..	1, 000	.....
Sardines, 1-pound boxes	boxes..	1, 800	.....
Shrimps	cans..	96	.....
Soups, assorted	quarts..	480	.....
Starch, corn	pounds..	80	.....
Sugar, cut, granulated, and powdered	do.	2, 590	.....
Tapoca	do.	40	.....
Tongue, 2-pound cans	cans..	24	.....
Cinnamon and cloves, ground	pounds..	24	.....
Flavoring extracts, 2-ounce bottles	bottles..	288	.....
Ginger, ground	pounds..	12	.....
Jam and jelly, 2-pound cans	cans..	2, 160	.....
Lime juice	bottles..	300	.....
Mustard, ground and French	pounds..	144	.....
Nutmeg	do.	8	.....
Olive oil, quart bottles	bottles..	120	.....
Olives, quart bottles	do.	72	.....
Pepper, red	pounds..	28	.....
Pickles, chowchow	jars..	72	.....
Salt, table	packages..	336	.....
Sauce:			
Cranberry	cans..	120	.....
Worcestershire, half pints	bottles..	144	.....
Cigars, assorted .....	.....	8, 000	.....
Pipes, brier wood .....	.....	288	.....
Pipestems .....	.....	144	.....
Tobacco:			
Plug	pounds..	4, 500	.....
Smoking	do.	510	.....
Toilet soap, assorted	cakes..	1, 500	.....
Sapolo soap	do.	360	.....
Ivory soap	do.	1, 000	.....
Bluing powder	boxes..	20	.....
Starch, laundry	pounds..	240	.....
Borax	do.	144	.....
Electro-silicon, 3-ounce boxes	boxes..	144	.....
Metal polish, 3-ounce tins	tins..	144	.....
Tripoli flour, 4-ounce packages	packages..	144	.....
Buttons:			
Snap	gross..	4	.....
Trousers	do.	100	.....
Needles	papers..	120	.....
Needles, darning	dozen..	250	.....
Pins	papers..	120	.....
Thread, assorted	spools..	1, 080	.....
Envelopes, letter and note .....	.....	11, 000	.....
Ink, black, 3-ounce bottles	bottles..	576	.....
Paper, letter and note	quires..	5, 000	.....
Pencils, lead .....	.....	432	.....
Penholders .....	.....	288	.....
Pens	gross..	36	.....
Blacking brushes .....	.....	192	.....
Hand basins .....	.....	288	.....
Shoeblacking	boxes..	288	.....
Brooms, whisk .....	.....	144	.....
Brushes:			
Hair .....	.....	108	.....
Nail .....	.....	72	.....
Tooth .....	.....	576	.....

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 15,605 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Buttons, collar	576	.....	.....
Can openers	144	.....	.....
Chamois skins	24	.....	.....
Clothes lines	feet 1,200	.....	.....
Clothes pins	1,400	.....	.....
French shoeblacking	boxes 144	.....	.....
Combs, assorted	812	.....	.....
Handkerchiefs, assorted	936	.....	.....
Indelible ink	bottles 144	.....	.....
Matches, safety	boxes 21,600	.....	.....
Toilet paper	packages 1,000	.....	.....
Razor strops	24	.....	.....
Shoe strings	pairs 1,728	.....	.....
Towels, assorted	1,944	.....	.....
Toweling	yards 200	.....	.....

In addition to the above, fresh beef was taken to last until the arrival of the command at the islands.

PHILIPPINE ISLANDS.

The strength of the army sent to the Philippine Islands in May, June, and July, 1898, was 641 officers and 15,056 enlisted men. The following quantities of subsistence stores were shipped to those islands from San Francisco, Cal., during the above period, being conveyed with the various expeditions which carried the men:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 1,606 men.
<i>Meat components.</i>			
Pork.....pounds..	106,600	2,531,456	168.1
Bacon.....do..	406,557		
Salt beef.....do..	99,000		
Beef:			
Fresh.....do..	866,514		
Fresh roast.....do..	1,274,329		
Corned, 2-pound cans.....cans..	19,126		
Salmon, 1-pound cans.....do..	407,160		
Mackerel, pickled.....pounds..	1,800		
Codfish, dried.....do..	2,460		
<i>Bread components.</i>			
Flour.....pounds..	2,328,100	2,759,834	168.3
Hard bread.....do..	689,053		
Corn meal.....do..	1,700		
Baking powder.....do..	78,156		
<i>Vegetable components.</i>			
Beans.....pounds..	221,000	2,679,780	173
Beans, baked, 3-pound cans.....cans..	15,192		
Rice.....pounds..	104,500		
Pease.....do..	1,750		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	351,408	2,511,457	233.2
Onions.....do..	74,600		
Potatoes, desiccated.....do..	190,440		
Onions, desiccated.....do..	48,080		
Tomatoes:			
24-pound cans.....cans..	210,416		
3-pound cans.....do..	31,300		
Gallon cans.....gallons..	2,400		

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 15,056 men.
<i>Coffee and sugar components.</i>			
Coffee:			
Green.....pounds..	190,029	2,641,615	175.4
Roasted.....do..	59,306		
Sugar.....do..	393,000	2,620,000	174
Molasses.....gallons..	214	10,700	71
Sirup.....do..	672	53,600	2.2
Tea.....pounds..	1,560	78,000	5.2
<i>Seasoning components.</i>			
Vinegar.....gallons..	25,799	2,579,900	171.3
Salt.....pounds..	105,200	2,630,000	174.7
Pepper.....do..	6,720	2,690,000	178.6
<i>Soap and candle components.</i>			
Soap.....pounds..	110,100	2,752,500	182.8
Candles.....do..	43,240	2,882,667	191.5
Soap, salt water.....do..	1,200	30,200	2
Lantern candles.....do..	2,120		
<i>Forage for 96 head of beef cattle on steamers.</i>			
Hay.....pounds..	34,242		
Corn.....do..	1,100		
Middlings.....do..	5,228		
Carrots.....do..	8,658		
<i>Stores for sales to officers and enlisted men.</i>			
Apples:			
2½-pound cans.....cans..	912		
Evaporated.....pounds..	5,020		
Apricots, 2½-pound cans.....cans..	10,776		
Bacon, breakfast.....pounds..	10,815		
Butter.....do..	11,686		
Cheese.....do..	6,360		
Chocolate, plain and vanilla.....do..	4,128		
Coffee, extra (Java and Mocha).....do..	7,094		
Coffee, extra, roasted and ground.....do..	5,804		
Corn, green, 2-pound cans.....cans..	8,616		
Crabs, 2-pound cans.....do..	600		
Crackers, assorted.....pounds..	50,182		
Family flour.....do..	57,700		
Gelatin, 2-ounce packages.....packages..	1,716		
Ham:			
Deviled, ½-pound cans.....cans..	2,928		
Sugar-cured.....pounds..	8,530		
Lard.....do..	12,540		
Lobsters, 1-pound cans.....cans..	1,178		
Hominy, fine.....pounds..	4,850		
Macaroni.....do..	2,560		
Milk, 1-pound cans.....cans..	17,812		
Mushrooms, ½-pound cans.....do..	3,200		
Oatmeal, 2-pound cartons.....cartons..	8,800		
Oysters, 2-pound cans.....cans..	1,800		
Peaches:			
2½-pound cans.....do..	21,154		
Evaporated packets.....packets..	6,520		
Pears, 2½-pound cans.....cans..	6,536		
Pease:			
American, 2-pound cans.....do..	8,790		
French, ½-pound cans.....do..	1,600		
Pigs feet, 2-pound cans.....do..	508		
Pineapples, 2-pound cans.....do..	3,552		
Preserves, damson, 2-pound cans.....do..	5,472		
Prunes.....do..	12,270		
Sardines:			
½-pound boxes.....boxes..	10,300		
1-pound boxes.....do..	4,300		
Shrimps, cans.....cans..	1,008		
Soups, assorted, quart cans.....do..	9,957		
Sugar, white, cut, and powdered.....pounds..	48,170		
Tapioca.....do..	680		
Tongues, 2-pound cans.....cans..	194		
Cinnamon, ground.....pounds..	162		
Cloves, ground.....do..	162		
Ginger, ground.....do..	146		
Flavoring extracts.....bottles..	3,784		
Jams and jellies, 2-pound cans.....cans..	19,648		
Lime juice.....bottles..	7,920		

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,000 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Mustard, ground.....	pounds.. 1,462		
Nutmeg.....	do. 108		
Olive oil, quart bottles.....	bottles.. 676		
Olives.....	gallons.. 225		
Pepper, red.....	pounds.. 156		
Pickles, assorted.....	jars.. 1,908		
Salt, table.....	pounds.. 25,340		
Sauces:			
Cranberry.....	cans.. 5,836		
Worcestershire, bottles.....	bottles.. 1,404		
Ginger ale.....	do. 21,600		
Cigars, assorted brands.....	157,100		
Pipes, brierwood.....	1,224		
Pipe stems.....	2,528		
Tobacco:			
Plug.....	pounds.. 43,038		
Smoking.....	do. 15,497		
Soap:			
Toilet, assorted.....	cakes.. 30,802		
Sapolo.....	do. 8,092		
Laundry.....	do. 12,600		
Bluing, powdered.....	boxes.. 2,776		
Starch.....	pounds.. 2,240		
Borax, 1-pound papers.....	do. 1,560		
Electro Silicon, 3-ounce boxes.....	boxes.. 5,048		
Metal polish, 3-ounce tins.....	tins.. 15,936		
Tripoli flour, 4-ounce packages.....	packages.. 4,642		
Buttons:			
Trousers.....	dozen.. 717,232		
Collar.....	7,000		
Needles.....	papers.. 1,290		
Needles, darning.....	dozen.. 850		
Needlebooks with needles.....	books.. 400		
Pins.....	papers.. 1,116		
Thread, spools, assorted.....	spools.. 12,666		
Envelopes, assorted.....	156,000		
Ink, black.....	bottles.. 5,144		
Paper, letter and note.....	quires.. 45,800		
Pencils, lead.....	11,504		
Penholders.....	5,244		
Pens.....	gross.. 116		
Hand basins.....	2,121		
Blacking, shoe.....	boxes.. 6,164		
Brooms, whisk.....	5,186		
Brushes:			
Blacking.....	9,000		
Hair.....	1,836		
Nail.....	3,092		
Tooth.....	25,712		
Can openers.....	4,170		
Chamois skins.....	500		
Clothes line.....	feet.. 114,240		
Clothes pins.....	25,200		
Combs, assorted.....	7,761		
Handkerchiefs, assorted.....	6,036		
Ink, indelible.....	bottles.. 540		
Matches, safety.....	boxes.. 430,320		
Toilet paper.....	packages.. 12,900		
Razor straps.....	318		
Shoestrings.....	pairs.. 45,360		
Towels, assorted.....	28,492		
Towelings.....	yards.. 9,795		
Pomade, Putz.....	boxes.. 250		
Garden seed, assorted.....	pounds.. 579		

In addition to the foregoing food supplies a contract was made at an early date, through the assistance of the United States consul-general at Melbourne, Australia, for the furnishing of refrigerated beef and fresh vegetables to the command after arrival at Manila. En route the expedition was supplied with refrigerated beef and beef from cattle slaughtered and dressed on the voyage.

CHICKAMAUGA NATIONAL PARK.

On April 22, 1898, an officer of the regular Subsistence Department was ordered to proceed to Chickamauga National Park and report in person to the commanding general at that place for duty. Subsistence funds were immediately placed to his credit in New York. A depot was established at Chattanooga, and supplies ample for the subsistence of the troops arriving were ordered from distant purchasing and shipping commissaries, and arrangements made for furnishing fresh beef, fresh bread, and vegetables to the command.

On May 14 2,700,000 rations were ordered shipped to Chattanooga, it being the policy at that time to have at least three months' supply, exclusive of daily consumption, on hand at all times for the number of troops at the camp. This extra supply was intended for use in case of immediate forward movements.

A subdepot was established at Camp George H. Thomas, in the Chickamauga National Park, for convenience of making issues to the camp.

By the system of weekly reports to the Commissary-General of Subsistence of the number of complete field rations and of the number of complete travel rations on hand at the depot at Chattanooga and the subdepot at Camp George H. Thomas, the supplies of food at those points were kept up by regular shipments from distant purchasing commissaries until the final abandonment of the Chickamauga National Park as a camping ground.

CAMPS AT NEW ORLEANS, MOBILE, TAMPA, SAN FRANCISCO, MIAMI, JACKSONVILLE, FALLS CHURCH, MIDDLETOWN, HUNTSVILLE, ANNISTON, AND LEXINGTON.

The troops encamped at these places were supplied with subsistence stores in the same way that the troops at Chickamauga National Park were supplied. With the exception of San Francisco, the depot commissaries on duty at each of these camps were required to make periodical reports to the Commissary-General of Subsistence of the supplies of food on hand. In San Francisco the troops were supplied directly by the chief commissary of subsistence of the Department of California on duty in that city, he drawing his supplies from the depot commissary there.

COMMISSARY CHESTS.

As conveniences were needed in the field for weighing and measuring articles in making issues and sales, and for repairing, recoopering, and marking packages, etc., a commissary chest was devised and sent into the field at an early date, giving great satisfaction.

COFFEE ROASTERS.

To avoid all chances of sophistication of the materials for the making of coffee, it has been the practice of the Subsistence Department to purchase for the troops coffee in the green state, leaving the entire work of roasting and converting it into drinkable coffee to be performed by the troops themselves. By this system general uniformity of standard of quality of coffee for issue to troops can best be maintained, and, the roasting and cooking being left to the men, they are always assured of having pure coffee and made according to their taste. Finding that no facilities had been provided for roasting coffee in the

field, the Commissary-General of Subsistence, with the approval of the Secretary of War, ordered a supply of coffee roasters to be sent into the field as soon as the troops assembled, one to be issued to each company.

To meet the necessities of active campaigning, where roasting in the field was impracticable, roasted coffee was furnished in large quantities, as will be seen from the tables hereinabove given. Coffee mills were furnished by the Quartermaster's Department.

FIELD BAKE OVENS.

As the building by the troops of temporary ovens of brick or other materials for the supply of fresh bread in camps is not always successful, and the use of a specially devised portable field oven, capable of baking with certainty a given quantity of bread in a given length of time, promised advantages greatly outweighing those possessed by the field ovens constructed by the troops, the Secretary of War authorized the Commissary-General of Subsistence to procure and send into the field a supply of portable field bake ovens of approved design. The field bake ovens wherever used gave the most gratifying results. It was the duty of the Subsistence Department, prior to the issue of General Orders No. 40, Headquarters Army, August 29, 1894, to build, alter, and repair the bake ovens constructed in the bakehouses at the garrisoned posts and in the field, and to furnish the utensils for use with the same; also to purchase portable bake ovens for use of troops in the field and the utensils connected with the operation of the same. The duty was by that order transferred to the Quartermaster's Department. With the view of having the duty restored to the Subsistence Department, an item has been introduced in the annual estimate for the fiscal year 1900 looking to the performance of the duty hereafter by the Subsistence Department. The incorporation of the words of the item in the appropriation act will, by giving the money for the purpose into the control of the Subsistence Department, furnish the first step toward the restoration of the duty to that Department.

MISCELLANEOUS EXPENDITURES.

The accounts for the fiscal year 1898 thus far examined show the following miscellaneous expenditures, viz:

For liquid coffee there was expended \$71,138, an increase over previous year of \$66,852.36; for extra-duty service, \$17,442.20, a decrease of \$3,361.45; for advertising, \$2,527.67, a decrease of \$1,669.94; for meals for recruiting parties and recruits and troops moving, \$89,260.55, an increase of \$53,772.78, due to the movements of the entire Army, both regulars and volunteers. The large increase in the amount expended for liquid coffee was due to same cause, and the decrease in extra-duty expenditures to the abolishment of pay therefor during the war times by act of Congress approved April 26, 1898. The decrease in advertising was caused by the necessity for immediate purchases on account of the war with Spain.

LOSSES OF STORES AND PROPERTY.

The value of the stores lost by accident, by wastage in transportation, while in store, etc., during the year, as shown by returns so far examined, for which no one was held responsible, was \$7,624.73, being greater by \$4,866.57 than that of similar losses in the previous year,

and due, undoubtedly, to the larger quantities of supplies required and moved by reason of the largely increased army to be supplied.

Supplies lost during the year for which responsibility was fixed amounted to \$528.74, of which \$29.93 has been collected, leaving still to be collected \$498.81.

SALE OF CONDEMNED AND OBSOLETE STORES.

From the returns thus far examined, the sales in the fiscal year appear to have been as follows:

	Subsistence stores.		
	Condemned.	Obsolete.	Total.
Original cost.....	\$3, 134. 72	\$25. 79	\$3, 160. 51
Amounts realized from sales.....	259. 55	13. 61	273. 16
Loss.....	2, 875. 17	12. 18	2, 887. 35

An increase from previous year in stores condemned of \$784.02, and a decrease in obsolete stores of \$674.57. From sales of condemned subsistence property there was realized the sum of \$94.45.

CREDIT SALES.

Sales to officers in the fiscal year 1898, as shown by the accounts thus far examined, reported as made on credit and not deducted on pay accounts, amount to \$1,232.47. The sales to enlisted men on credit amounted to \$2,712.72, and the collections therefrom during the year, by the Pay Department, on muster and pay rolls and final statements, on account of credit sales in the current year and previous fiscal years, amounted to \$2,532.81.

A sale on credit to the Medical Department was made in June, 1898, in the sum of \$791.64, for which reimbursement has not yet been received.

Issues to Indians.

To whom made.	Value of issues.
Apache Indian prisoners at Fort Sill, Okla. (army appropriation act of Mar. 2, 1897).....	\$10, 647. 95
Indian prisoners at Fort Grant, Ariz.....	89. 55
Indians visiting military posts (Rev. Stat., 2110)	142. 40
Total.....	10, 829. 90

Issues to Spanish prisoners of war were made in May and June, 1898, to the extent of 8,655 rations.

REGIMENTAL COMMISSARIES.

It is thought to be a defect of organization that a regimental commissary is not authorized by law, who should be specially charged with the receipt and distribution of the food supplies of the regiment.

COMMISSARY SERGEANTS.

The number of commissary sergeants in service at the beginning of the fiscal year was 90. During the year 30 were appointed, 1 died, 1

was discharged, and 10 were retired, leaving 108 in service at the end of the year. The number should be increased so as to furnish one for each regiment in service, and one for each garrisoned post.

SYSTEM OF KEEPING RECORDS.

In the business world, where business of any intricacy or magnitude is conducted on business principles, no one would think of dispensing with the daybook. The elementary treatises on bookkeeping teach that the keeping of books is necessary for the faithful and systematic record of business transactions, and that the daybook is the book of original entry, containing a consecutive history of the transactions in the *date and order of their occurrence*. As the records in this book are made when the transactions and all the circumstances connected with them are fresh in the mind, it is the only book allowed in court in cases of litigation. Its importance from this fact, and also on account of its being the basis of all the results shown by the other books or records, can not be overrated.

These considerations should be of controlling weight in a governmental office, where, for the orderly and systematic dispatch of its business, and for the purposes of a retrospect of any and all of its transactions, the consecutive history of the same should be displayed by the entries kept permanently, and where they can be visually seen in *chronological* order; where they can never be displaced; where they remain even though the papers they record may become lost, misplaced, or destroyed; where anyone else beside the actors may see visually in a connected form what has been going on. The present system, which prohibits the making of any book entries, except in regard to money accounts, and distributes the record of transactions in fragmentary shape day by day through the files, gives no history such as a daybook gives of transactions in the date and order of their occurrence.

The precipitation of actual war upon the entire War Department has put to the severest test the system of keeping records prescribed by War Department circular of May 15, 1894. The system was attempted in the Navy Department a few years ago and abandoned.

In this Bureau all possible effort was made after the war began to keep the papers on the "record card file," the "card index file," the "document file," and the "precedent file," and to cause all papers received and sent to pass in the regular prescribed order through the hands of the mail clerks, the briefing clerks, and the numbering clerks, and to have the index cards and the cross reference cards and the charge cards and the tally lists made and kept and filed in precise order.

The conducting the war by telegraph soon broke into the maintenance of this system, and before the first augmentation of the clerical force had occurred on May 12, under the national defense act, the system had yielded to the pressure of events, and on the orders of the officers on duty in the Bureau the records were thereafter largely kept by putting under rubber bands the original letters and telegrams received, and letterpress copies of replies, and placing them in assorted piles on tables and in drawers where they could be under the control of the officers immediately concerned, and the several piles placed in the custody of clerks who were to keep in memorandum form and in their heads for index purposes a complete knowledge of their individual contents, no book entries being allowed. The accidental absence of one of these clerks was a partial paralysis of business.

The keeping of records in this unsatisfactory way still continues. There being thus no chronological arrangement, such as would be given by book entries, an exhaustive connected view of any one subject embodied in correspondence could and can only be had by a painstaking examination of the original letters or telegrams and press copies of all the piles (in order that none might escape by reason of improper assortment), or, more recently, by implicit reliance on the "record card files" and the "document files," which are now being hurriedly made up by the clerks from these assorted piles and individual stray papers. The dispersed character of the record, the giving of the same file numbers to papers of widely different dates, and the misplacement of letters and replies in point of dates and subject-matter when assembled in special card files add to the confusion and make an investigation into a subject without the aid of the memories of the living clerks, who have a knowledge of the matters and of the specific cards involved and their location, a task of difficult accomplishment, and the result is never free of doubt as to possible omissions on account of the weakness of the system and the manner in which the system has had to be imperfectly maintained. I believe the experience of this Bureau is not unique in the above particulars.

CLERICAL FORCE, OFFICE COMMISSARY-GENERAL OF SUBSISTENCE.

The regular force of 32 clerks was increased by the addition, from time to time after May 12, of temporary clerks employed under the appropriation for national defense, act of March 9, 1898 (30 Stat. L., 274), the deficiency act of May 31, 1898 (30 Stat. L., 422), and the deficiency act of July 7, 1898 (30 Stat. L., 696). The net increase has been about 40 clerks, all of whom are paid on the temporary roll. While, by the act of July 7, 1898, these temporary employees may be appointed for "a term not exceeding one year," that same act made appropriation for their payment until December 31, 1898, only. This will require that Congress shall further legislate in respect to the clerical force of this Bureau before the expiration of this calendar year, and I take the opportunity thus afforded of urgently pressing upon the attention of superior authority the justness and reasonableness of a rearrangement of the salaries of the clerical force of this Bureau. With the permanent increase of the Regular Army and the continuance of the Volunteer Army in service, the clerical work in this Bureau is increased in volume and importance. The clerical force, in my opinion, should be graded in accordance with those equitable principles which are observable in the arrangement of salaries in other bureaus and departments of the Government. I have, therefore, in submitting the estimate for the clerical force for the period beginning January 1, 1899, and ending June 30, 1899, asked for a moderate increase of grades of the regular clerical force, and have estimated for these increased grades in the estimate for the fiscal year ending June 30, 1900. I hope the proposed rearrangement will meet the approval of the Secretary of War and be favorably acted upon by Congress. In connection with the subject of the clerical work of the Bureau, I beg to say that since April last it has been necessary to keep a part of the clerical force on duty beyond office hours. The extra work has been cheerfully performed, and it is thought that extra compensation should be paid for the extra work. It is hoped that the Secretary of War will give the matter his favorable consideration.

The work of examining accounts and returns for the fiscal year has been as follows:

	Accounts current.	Returns of subsistence stores.	Returns of subsistence property.	Total.
On hand June 30, 1897.....	4	40	1	45
Received during fiscal year, 1898.....	2, 267	1, 601	580	4, 448
Total.....	2, 271	1, 641	581	4, 498
Examined during the year.....	2, 242	1, 589	580	4, 411
On hand June 30, 1898.....	29	52	1	82

The examination of the accounts current required the verification of 35,231 vouchers; the returns of subsistence stores, 25,629 vouchers; and the returns of subsistence property, 1,447 vouchers.

In connection with the examinations, 2,888 postal cards were used, 2,319 letters and 2,146 indorsements written and recorded, and 108 papers copied.

Contracts for supplies, etc., to the number of 265 were received and acted on.

Certificates of services as acting commissary of subsistence were issued to the number of 299, and of nonindebtedness to the number of 112.

Number of claims on hand, received, and disposed of during the fiscal year ending June 30, 1898.

	Claims for commutation of rations—		Total.
	While held as prisoners of war in rebel States.	While on furlough, and miscellaneous claims.	
There were on hand June 30, 1897.....	27	31	48
Received during the fiscal year.....	845	725	1, 070
Total.....	872	746	1, 118
Disposed of during the year.....	840	389	729
On hand June 30, 1898.....	32	357	389

The number of letters and indorsements written during the year in connection with the above claims was 2,815.

DUTIES OF OFFICERS OF THE SUBSISTENCE DEPARTMENT.

The officers of the regular establishment have worked with unfailing zeal and unparalleled efficiency in carrying out the orders of the Commissary-General, extending their labors at times into the night and making no distinction as to office hours or Sundays. Some of them broke down and are now on sick leave because of their labors. Their work was so important that the Commissary-General was unable to spare anyone from his post of duty, and the Commissary-General has consequently been obliged to carry on the vast business of this Bureau of the War Department with but one officer as an office assistant, whereas preceding Commissary-Generals, during times of peace when

the Army of only 25,000 men was all located at well-regulated permanent posts, have generally had three office assistants, and never less than two. The work of the officers of the regular Subsistence Department has been the highest possible form of patriotism, and their quiet, honest, and successful meeting of every demand upon them entitles them to just appreciation.

The commissaries of subsistence of volunteers have, with few exceptions, been zealous, painstaking, and anxious to perform their duties, and have done marvelously well. One was wounded in action in Cuba, and others were close up to the firing line distributing as best they could subsistence supplies to the troops, and thereby incurring quite as much danger as any of them.

The list of volunteer commissaries incorporated in this report shows the dates of qualifying by each and the first duty to which assigned.

The list subjoined shows the regular officers of the Subsistence Department and their duties on October 1, 1898.

Respectfully submitted.

CHAS. P. EAGAN,
Commissary-General of Subsistence.

The SECRETARY OF WAR.

Roster of the Subsistence Department, United States Army, October 1, 1898.

Name and rank.	Duty and station.	Assigned to present station.
<i>Commissary-General of Subsistence.</i>		
BRIGADIER-GENERAL.		
Charles P. Eagan	Commissary-General of Subsistence, Washington, D. C.	May 3, 1898
<i>Colonels.</i>		
John F. Weston (Brig. Gen. Vols.).	Purchasing commissary, New York, N. Y. (On leave of absence.)	Sept. 26, 1898
Charles A. Woodruff	Chief commissary, Department of the East, Governor's Island, New York.	May 27, 1898
<i>Lieutenant-Colonels.</i>		
John J. Clague	Chief commissary on the staff of Maj. Gen. Joseph C. Breckinridge, U. S. Vols., commanding Third Army Corps, at Camp Hamilton, Lexington, Ky.	Aug. 4, 1898
Henry G. Sharpe (Col., U. S. A.).	Chief commissary on the staff of Maj. Gen. John R. Brooke, U. S. A., commanding Department of Porto Rico, at Ponce, Porto Rico, and purchasing and depot commissary at that place.	July 18, 1898
Frank E. Nye	Purchasing and depot commissary, Huntsville, Ala.	Aug. 28, 1898
<i>Majors.</i>		
William L. Alexander (Lieut. Col., U. S. A.).	Purchasing commissary, St. Louis, Mo.	July 2, 1898
Henry B. Osgood (Lieut. Col., U. S. A.).	Purchasing and depot commissary, Santiago, Cuba	Aug. 1, 1898
Oskaloosa M. Smith (Lieut. Col., U. S. A.).	Purchasing commissary, Chicago, Ill.	Oct. 31, 1895
Edward E. Dravo (Lieut. Col., Vols.; Col., U. S. A.).	Chief commissary, Department of the Gulf, and purchasing commissary, Atlanta, Ga.	Mar. 14, 1898
Abiel L. Smith (Lieut. Col., U. S. A.).	Purchasing and depot commissary, Havana, Cuba.	Oct. 1, 1898
Tasker H. Bliss (Lieut. Col., Vols.).	Purchasing and depot commissary, Matanzas, Cuba.	Do.
James N. Allison (Lieut. Col., Vols.).	Chief commissary on the staff of Maj. Gen. Wm. M. Graham, U. S. Vols., commanding Second Army Corps, Camp George G. Meade, Middletown, Pa.	May 24, 1898
William H. Baldwin (Lieut. Col., Vols.; Col. U. S. A.).	Purchasing commissary, San Francisco, Cal.	Jan. 31, 1897

Roster of the Subsistence Department, United States Army, October 1, 1898—Cont'd.

Name and rank.	Duty and station.	Assigned to present station.
<i>Captains.</i>		
David L. Brainard (Lient. Col., Vols.).	Chief commissary on the staff of Maj. Gen. Wealey Merritt, U. S. A., commanding Eighth Army Corps, Manila, Philippine Islands.	May 17, 1898
George B. Davis (Col., U. S. A.).	Assistant to the Commissary-General of Subsistence, Washington, D. C.	Feb. 9, 1898
John H. Duval.....	On leave.....	Sept. 8, 1898
Barrington K. West (Maj., U. S. A.).	Purchasing commissary, New Orleans, La.....	Feb. 28, 1898
Albert D. Niskern (Maj., U. S. A.).	Commissary on U. S. transport Comal.....	Aug. 22, 1898
John Little (Maj., U. S. A.) ..	Purchasing and depot commissary, Dunn Loring, Va....	June 14, 1898
E. L. Bullard.....	Not on duty. (Col., Third Ala. Vol. Inf.).....	
[Vacancy]		

REPORT OF THE SURGEON-GENERAL.

REPORT

OF

THE SURGEON-GENERAL.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., November 10, 1898.

SIR: In submitting a report of my administration of the duties of this office during the past year, I have the honor first to invite attention to the following statement of financial transactions for the fiscal year ended June 30, 1898:

Medical and Hospital Department, 1898:

Appropriated by act approved March 2, 1897	\$185,200.00
Refunded during the year	768.07

Total to be accounted for	185,968.07
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Disbursed during the year:

Expenses of purveying depots	\$77.20
Medical supplies	70,698.06
Pay of employees	34,255.09
Expenses of recruiting	3,257.95
Medical attendance and medicines	14,415.27
Washing at post hospitals	1,296.91
Pay of nurses	1,037.26
Miscellaneous expenses	98.99
	125,181.73

Balance on hand to be accounted for June 30, 1898	10,836.34
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In United States Treasury	31.22
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In hands of disbursing officers:

New York	418.19
Washington	886.93

With Philippine expedition	10,000.00
	10,836.34

The above balance of \$10,836.34 remaining on hand July 1, 1898, has since been all expended.

Medical and Hospital Department, 1897:

Balance on hand July 1, 1897, act of March 6, 1896	\$54,417.24
Refunded during the year	48.54

Total to be accounted for	54,465.78
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Disbursed during the year:

Medical supplies	\$21,281.68
Pay of employees	100.00
Medical attendance and medicines	3,190.88
Washing at post hospitals	162.28
Miscellaneous expenses	244.22
	24,978.56

Balance on hand to be accounted for June 30, 1898	29,487.22
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WAR 98—38

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Medical and Hospital Department, 1897—Continued.

In United States Treasury	\$24,841.56	
In hands of disbursing officers:		
New York	956.53	
St. Louis	2,672.85	
Washington	1,016.28	
		<u>\$29,487.23</u>

Medical and Hospital Department, 1896:

Balance on hand July 1, 1897, act of February 12, 1895	62,344.96	
Disbursed during the year	\$50.00	
Transferred to surplus fund	62,294.96	
		<u>62,344.96</u>

Medical and Hospital Department, January 1, 1899:

Appropriated by act approved May 4, 1898	50,000.00	
Appropriated by act approved June 8, 1898	50,000.00	

Total to be accounted for

100,000.00

Disbursed:

Medical supplies	\$49,344.30	
Pay of employees	856.65	
Expenses of recruiting	5,975.63	
Medical attendance and medicines	1,270.80	
Washing at post hospitals	47.44	
Miscellaneous expenses	49.18	
		<u>57,044.00</u>

Balance on hand to be accounted for June 30, 1898

42,956.00

In hands of disbursing officers:

New York	\$21,269.88	
St. Louis	13,418.30	
Washington	1,478.42	
San Francisco	1,794.40	
With Major Torney, hospital ship <i>Relief</i>	5,000.00	
		<u>42,956.00</u>

National defense (war) act of March 9, 1898:

Allotment by the President, April 16, 1898	\$20,000.00	
Disbursed for medical supplies	\$19,964.39	
Balance on hand June 30, 1898	35.61	
		<u>20,000.00</u>

It is estimated that about \$120,000 of the amounts reported in the above statement as expended up to and including June 30, 1898, have been used for extraordinary war expenses.

Since July 1 the following sums have been appropriated for war expenses on account of the Medical Department of the Army, namely:

By deficiency act, July 7, 1898	\$504,000.00	
National defense (war):		
By allotment of the President, September 8, 1898	500,000.00	
By allotment of the President, October 6, 1898	500,000.00	
		<u>1,504,000.00</u>

Of this sum there are at this date (November 1, 1898) available \$395,000, all of which will be required for the payment of claims and accounts on account of war expenses now in this office and to be presented before December 31 of this year.

In addition to these sums there were also appropriated by the act approved March 15, 1898, \$115,000, being the regular annual appropriation for the Medical and Hospital Department for the fiscal year 1899. Of this appropriation it is estimated that \$50,000 have now been expended for war measures.

Artificial limbs, 1898:	
Appropriated by act approved June 4, 1897.....	\$183,000.00
Disbursed during the year	159,775.27
Balance on hand June 30, 1898	23,224.73
Artificial limbs, 1897, act approved June 11, 1896:	
Balance July 1, 1897	22,145.54
Disbursed during the year	12,270.34
Balance on hand June 30, 1898	9,875.20
Artificial limbs, 1896, act approved March 2, 1895:	
Balance July 1, 1897 .....	.19
Transferred to surplus fund .....	.19
Artificial limbs, certified claims, 1896:	
Appropriated by deficiency act approved July 19, 1897.....	171.73
Disbursed	171.73
Appliances for disabled soldiers, 1898:	
Appropriated by act approved June 4, 1897	2,000.00
Disbursed during the year	1,282.21
Balance on hand June 30, 1898	717.79
Appliances for disabled soldiers, 1897, act approved June 11, 1896:	
Balance July 1, 1897	954.73
Disbursed during the year	169.71
Balance on hand June 30, 1898	785.02
Appliances for disabled soldiers, 1896, act approved May 2, 1895:	
Balance July 1, 1897	671.35
Transferred to surplus fund	671.35
Army Medical Museum, 1898:	
Appropriated by act approved March 2, 1897	5,000.00
Disbursed during the year	4,930.72
Balance on hand June 30, 1898	69.28
Army Medical Museum, 1897, act approved March 16, 1896:	
Balance July 1, 1897	117.24
Disbursed during the year	117.24
Army Medical Museum, 1896, act approved February 12, 1895:	
Balance July 1, 1897 .....	.47
Transferred to surplus fund .....	.47
Library, Surgeon-General's Office, 1898:	
Appropriated by act approved March 2, 1897	10,000.00
Disbursed during the year	9,746.79
Balance on hand June 30, 1898	253.21
Library, Surgeon-General's Office, 1896, act approved February 12, 1895:	
Balance July 1, 1897	11.10
Transferred to surplus fund	11.10
Furnishing and fitting trusses for disabled soldiers, sections 1176, 1178, R. S., act of March 3, 1879:	
Expended during the year	9,032.66

Providence Hospital:

Appropriated by act approved June 4, 1897.....	\$19,000.00
Expended during the year	19,000.00
<hr/>	
Appropriated by act approved March 2, 1897:	
Construction and repair of hospitals.....	75,000.00
Disbursed during the year	74,816.84
<hr/>	
Balance on hand June 30, 1898.....	183.16
<hr/>	
Appropriated by act approved March 2, 1897:	
Construction and repair of quarters for hospital stewards	7,000.00
Disbursed during the year	6,957.12
<hr/>	
Balance on hand June 30, 1898.....	42.88

ARTIFICIAL LIMBS AND THEIR COMMUTATION.

Under the provisions of law relating to artificial limbs there were furnished during the year ended June 30, 1898, 32 artificial legs, 2 feet, and 1 apparatus for exsection, and commutation certificates were issued for 145 cases of amputated leg, 106 arms, 8 feet, and in 2,909 cases of loss of the use of a limb, involving an expenditure of \$172,217.59 from the available appropriations.

The cases of benefits recurring under the laws relating to artificial limbs during the fiscal year ending June 30, 1900, are those last paid in the year ended June 30, 1897. These benefits recur every three years. To cover those of the last-mentioned year the sum of \$575,000 was appropriated by the act approved June 11, 1896, and nearly the whole of this has been expended. It is considered that the sum of \$547,275 will suffice to pay all commutations and the cost of artificial limbs and of the transportation to procure them during the year ending June 30, 1900.

APPLIANCES FOR DISABLED SOLDIERS.

The number of appliances issued to disabled soldiers during the year was 197, for which was disbursed the sum of \$1,451.92.

TRUSSES.

The number of trusses issued and fitted during the year was 1,280.

PROVIDENCE HOSPITAL.

The act of Congress approved June 4, 1897, appropriated \$19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C., under a contract to be made with the Providence Hospital by the Surgeon-General of the Army. The amount of relief afforded under this appropriation was as follows:

Patients in hospital July 1, 1897.....	118
Admitted during the year	1,282
<hr/>	
Total number treated.....	1,400
Average number admitted per month.....	117
Number remaining in hospital June 30, 1898.....	119
Total number of days' treatment afforded.....	40,625
Average number of days' treatment per patient	31
Average number of patients treated per day	111
Longest term of treatment (days)	365
Shortest term of treatment (day)	1
Number of patients in hospital during the whole year	22

ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, ARK.

Officers' division.—Thirty-one officers were treated during the calendar year, of whom 23 recovered sufficiently to resume their duties or were much improved, by an average treatment of forty days.

Enlisted men's division.—During the calendar year 119 cases were completed—89 by return to duty, 25 by discharge for disability, 4 by discharge on account of expiration of term of service, and 1 by death. The number treated for rheumatism was 81, of whom 63 were returned to duty, and six months after these men were so returned 55 of them were found to be doing full duty with their companies, 1 had been discharged on account of expiration of term, and 7 had been discharged on account of a recurrence of their rheumatism.

Division of honorably discharged men.—Under the provisions of General Order 26, Adjutant-General's Office, dated May 25, 1897, honorably discharged soldiers and sailors of the Regular and Volunteer Army and Navy are admitted for treatment under conditions and regulations prescribed by the Surgeon-General of the Army and approved by the Secretary of War, Circular No. 1, Surgeon-General's Office, dated May 8, 1897. Thirty-seven men were admitted under permits issued by the Surgeon-General, 17 of whom were remaining under treatment December 31, 1897.

HOSPITALS AND HOSPITAL STEWARDS' QUARTERS.

During the fiscal year ended June 30, 1898, the new hospitals at Fort Hamilton, N. Y., and Fort Monroe, Va., were completed and occupied. An additional ward for twelve beds was added to the hospital at Fort Wayne, Mich., and the interior arrangements of the administration building were increased. A third ward, for twelve beds, was provided in the hospital at Washington Barracks by completing the third floor under the mansard roof, and the hospitals at the Presidio of San Francisco and other places were placed in thorough condition. Buildings were also fitted up for temporary hospital purposes at Fort Washington, Md., Sullivans Island, S. C., Fort Delaware, Del., and funds were used in providing for general and other hospitals rendered necessary by the war with Spain.

Quarters for hospital stewards were built at Fort Bliss, Tex., and Fort Leavenworth, Kans., and additions were made to similar buildings at other posts for the purpose of making them more comfortable.

ARMY MEDICAL MUSEUM.

The total number of specimens in the Army Medical Museum at the end of the fiscal year, June 30, 1898, was 35,025. The following statement shows in detail the additions and changes in the different sections:

Pathological section:	
In museum June 30, 1897	11,262
Transferred from anatomical section	1
Received during the year	183
In museum June 30, 1898	<u>11,446</u>

Anatomical section:

In museum June 30, 1897	3,710
Transferred to pathological section	1
Transferred to Dickinson College, Carlisle, Pa	1
Transferred to Smithsonian Institution	2,205
	<hr/> 2,207
	<hr/> 1,503
Received during the year	15
	<hr/> 1,518
	<hr/> <hr/> 1,518

Section of comparative anatomy:

In museum June 30, 1897	1,689
Discarded	83
Transferred to Dickinson College, Carlisle, Pa	13
Transferred to Howard University, Washington, D. C	87
	<hr/> 83
	<hr/> 1,606
	<hr/> <hr/> 1,606

Microscopical section:

In museum June 30, 1897	12,750
	<hr/> 12,750
	<hr/> <hr/> 12,750

Miscellaneous section:

In museum June 30, 1897	2,364
Turned over to Army in field	8
	<hr/> 2,356
Received during the year	123
	<hr/> 2,479
	<hr/> <hr/> 2,479

Provisional pathological section:

In museum June 30, 1897	1,993
Transferred	2
	<hr/> 1,991
Received during the year	74
	<hr/> 2,065
	<hr/> <hr/> 2,065

Provisional anatomical section:

In museum June 30, 1897	891
Received during the year	4
	<hr/> 895
	<hr/> <hr/> 895

Photographic series:

In museum June 30, 1897	2,238
Received during the year	28
	<hr/> 2,266
	<hr/> <hr/> 2,266

RECAPITULATION.

Specimens in the museum June 30, 1897	36,897
Discarded, transferred, etc	2,299
	<hr/> 34,598
Added	427
	<hr/> 35,025
	<hr/> <hr/> 35,025

The following are some of the more interesting specimens added to the museum collection during the fiscal year ended June 30, 1898:

1. Three normal fetuses from cattle which were killed because of tuberculosis. Contributed by the United States College of Veterinary Surgeons, Washington, D. C.
2. A two months' tubal pregnancy, removed by operation; recovery. Contributed by Dr. I. S. Stone, Washington, D. C.
3. Uterus and tumor, from a case of Caesarian section; hysterectomy; mother and child survive. Contributed by Dr. D. H. Williams, surgeon-in-chief, Freedmen's Hospital, Washington, D. C.
4. Malformations: (1) Human fetus, showing anencephalus and spina bifida. Contributed by Dr. J. F. Moran, Washington, D. C. (2) Kitten, showing cephalo-thoracopagus. Contributed by Augustus Tracey, private, Hospital Corps, United States Army. (3) Dog, showing thoracopagus. Contributed by Dr. L. M. Hardin, physician, United States Indian Service. (4) Vestigial cyst from thorax. Contributed by Dr. D. S. Lamb, pathologist, Surgeon-General's Office.
5. Two specimens of hydrocephalus: (1) Dilatation of ventricles and tumor of cerebellum, from a child 5 years old. Contributed by Dr. S. S. Adams, Washington, D. C. (2) Hydrocephalic brain and skull, from a calf 2 days old. Contributed by United States College of Veterinary Surgeons, Washington, D. C.
6. Three cases of disease of cerebellum: (1) Endothelioma; from a boy 16 years old. Contributed by Dr. E. L. Tompkins, Washington, D. C. (2) Abscess cavity. Contributed by Dr. D. H. Williams, surgeon-in-chief, Freedmen's Hospital, Washington, D. C. (3) Abscess cavity, also perforation of temporal bone from otitis. Contributed by Dr. A. A. Snyder, Washington, D. C.
7. Five specimens from a boy 4 years old, showing general tuberculosis, especially marked as large tumors in the brain. Contributed by Dr. G. N. Acker, Washington, D. C.
8. Diseases and injuries of circulatory system: (1) Heart of dog containing entozoa, filaria immitis. Contributed by the College of Veterinary Surgeons, Washington, D. C. (2) Shot perforation of the heart, accidental. Contributed by Maj. A. C. Girard, surgeon, United States Army. (3) Shot perforation of the heart, lung, and diaphragm; suicide. Contributed by Maj. R. H. White, surgeon, United States Army. (4) Purulent pericarditis in a boy 3 years old, who had also pneumonia and had had rickets. Contributed by Dr. G. N. Acker, Washington, D. C. (5) Heart, showing recent pericarditis in a man who had also red hepatization of lung. Contributed by Dr. D. S. Lamb, pathologist, Surgeon-General's Office. (6) Heart weighing 16½ ounces, showing chronic pericarditis with hypertrophy and dilatation, from a boy 11 years old. Contributed by Dr. G. N. Acker, Washington, D. C. (7) Old transverse rupture and incipient aneurism of ascending aorta, from a man 50 years old, who died of cerebral hemorrhage. Contributed by Dr. D. S. Lamb, pathologist, Surgeon-General's Office.
9. Diseases of respiratory organs: (1) Sarcoma of lungs and mediastinal glands, apparently secondary to sarcoma of submaxillary region; from a case of hypertrophic pulmonary arthropathy in a man 50 years old. Contributed by Dr. E. M. Hasbrouck, Washington, D. C. (2) Sarcoma of lungs and mediastinal organs. Contributed by Dr. W. W. Johnston, Washington, D. C. (3) Lung and heart from a case of empyema and pericarditis. Contributed by Dr. Clifton Mayfield, Washington, D. C. (4) Three specimens from a case of typhoid ulceration of small intestine, in which diphtheritic inflammation of trachea and bronchi supervened; from a girl 9 years old. Contributed by Dr. S. S. Adams, Washington, D. C.
10. Large gumma of mediastinum; death from hemorrhage into trachea. Contributed by Dr. D. S. Lamb, pathologist, Surgeon-General's Office.
11. Series of plaster casts of dentures, showing irregularities of teeth and the appliances in situ to correct the same. Prepared under the direction of Dr. V. H. Jackson, New York, N. Y.
12. Diseases of stomach: (1) Extensive cancer not involving the orifices. Contributed by Dr. W. A. Caldwell, Washington, D. C. (2) Adeno-carcinoma from a man 79 years old; the lungs and the cervical glands were also involved. Contributed by Dr. G. W. Cook, Washington, D. C. (3) Large old ulcer which perforated, causing fatal peritonitis; from a man 60 years old. Contributed by Col. W. H. Forwood, assistant surgeon-general, United States Army.

13. Diseases and injuries of intestine: (1) Perforation of cæcum, from a soldier who was struck by a moving train. Contributed by Capt. W. C. Gorgas, assistant surgeon, United States Army. (2) Chronic inflammation of colon, from a soldier. Contributed by First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army. (3) Cancer of cæcum, removed by operation; death on fifth day. Contributed by Dr. J. Ford Thompson, Washington, D. C. (4) Entozoa (*Filaria obtusa*) from intestine of mouse. Contributed by J. Barton, veterinary surgeon, Washington, D. C.
14. Diseases of the biliary organs: (1) Gall bladder, showing dilatation, thickening, and ulceration; from a man 45 years old, in whom the lesion appeared to be the result of being chilled. Contributed by Dr. A. A. Snyder, Washington, D. C. (2) Amoebic abscess of liver. Contributed by Dr. H. P. Howard, Alexandria, Va. (3) Dilatation of biliary canal from impaction of calculi in common and cystic ducts; there is also ulceration of pylorus and duodenum; from an ex-soldier 65 years old. Contributed by Col. W. H. Forwood, assistant surgeon-general, United States Army. (4) Large gallstone, passed by a woman after five months of obstructive jaundice and three days of severe colic. Contributed by Maj. H. O. Perley, surgeon, United States Army. (5) Amyloid liver, weighing 126 ounces. Contributed by Dr. W. M. Gray, microscopist, Surgeon-General's Office. (6) Four specimens from cattle slaughtered because of tuberculosis; one shows cavernous angiomas, the other three tuberculosis. Contributed by United States College of Veterinary Surgeons, Washington, D. C.
15. Cancer of head of pancreas, with resultant dilatation of biliary passages; from a woman 74 years old. Contributed by Dr. H. C. Yarrow, Washington, D. C.
16. Spleen showing myelogenous leukamia; weight, 88 ounces; from a soldier 82 years old. Contributed by Col. W. H. Forwood, Assistant Surgeon-General United States Army.
17. Two specimens of hydronephrosis: (1) From a woman about 34 years old, who died of cerebral hemorrhage, and from whom, three years previously, had been removed an ovarian cyst. At the autopsy the ureter was found compressed by an inflammatory band. Contributed by Dr. D. H. Hazen, Washington, D. C. (2) Hydronephrosis in a child 3 years old, due to tuberculosis of ureters and bladder. Contributed by Dr. G. N. Acker, Washington, D. C.
18. Primary cancer of prostate gland, causing hydronephrosis; secondary growth of ribs, liver, and lumbar and iliac glands, from a man 63 years old. Contributed by Dr. T. C. Smith, Washington, D. C.
19. Cancer of mammary gland, with multiple hemorrhages into the growth; removed by operation. Contributed by Dr. W. P. Carr, Washington, D. C.
20. Molluscum fibrosum, weighing 6½ pounds, removed from back of white man. Contributed by Dr. D. H. Williams, surgeon-in-chief, Freedmen's Hospital, Washington, D. C.
21. Entozoön, *filaria equina*, removed from the aqueous humor of a mule; recovery with use of eye. Contributed by Mr. E. P. Flower, New Orleans, La.
22. Large polypus removed from nose of a girl 13 years old. Contributed by Dr. W. K. Butler, Washington, D. C.
23. Mouse dead of *tinea favosa*. Contributed by J. Barton, veterinary surgeon, Washington, D. C.
24. Hernia. (1) Femoral hernial sac removed by operation from an ex-soldier 71 years old, because of incarceration and strangulation; death on eighteenth day. Contributed by Col. W. H. Forwood, Assistant Surgeon-General, United States Army. (2) Inguinal hernial sac, including portion of vermiform appendix, removed because irreducible and strangulated; from a man 35 years old. Contributed by P. A. Surg. G. T. Vaughn, United States Marine Hospital Service. (3) Umbilical hernia; removal of a portion of jejunum and mesentery, because of strangulation, from a woman 50 years old; death soon after operation. Contributed by Dr. E. A. Balloch, Washington, D. C.
25. Diseases and injuries of bone. (1) Suppurative osteomyelitis with fistulæ of femur, from a soldier 26 years old, who had been injured in the knee by jumping; amputation; recovery. Contributed by Maj. L. A. La Garde, surgeon, United States Army, and First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army. (2) Scapula showing shot fracture, from a soldier who died of hemorrhage from lung six and a half hours after injury. Contributed by Maj. A. C. Girard, surgeon, United States Army. (3) Two

- specimens showing fracture and dislocation of third to fifth cervical vertebra, with compression and laceration of and extensive hemorrhage into the corresponding cord; from an ex-soldier, who, while intoxicated, fell 21 feet on his head; died thirty-six hours after injury. Contributed by Maj. A. C. Girard, surgeon, United States Army. (4) Two specimens, one showing healed shot fracture of femur of Chinese pheasant (contributed by First. Lieut. Benjamin Brooke, assistant surgeon, United States Army), the other, healed fracture of tibia of red deer (contributed by Maj. H. O. Perley, surgeon, United States Army). In each case there is much deformity.
26. Keratinizing epithelioma from submaxillary region, removed by operation. Contributed by Dr. J. Ford Thompson, Washington, D. C.
 27. Fragment of a 6-pound shell, weighing 12.5 grams, removed from a Spanish steersman. It was lodged in the left wall of the thorax, near to, but not involving, the pleura; recovery. Contributed by Capt. Paul Clendenin, assistant surgeon, United States Army. This was the first specimen received at the Museum from the Hispano-American war.
 28. Three models of the human eye showing its anatomy in horizontal section, anterior half and posterior half. Contributed by Dr. H. O. Reik, Baltimore, Md.
 29. Litter used in the Mexican army. Contributed by Gen. Epifanio Cacho, chief of the medical department, Mexican army.
 30. Uniform, consisting of a coat, trousers, and cap, of hospital attendant of the Mexican army. Contributed by Gen. Epifanio Cacho, chief of the medical department, Mexican army.
 31. Series of photographs of Armory Square Hospital, Washington, D. C., showing some of its buildings, rooms, personnel, and patients during the war 1861-1865. Contributed by Mrs. Gen. John A. Logan.
 32. Radiograph of arm and part of forearm showing the humerus reduced to about half its length, its diameter lessened and its lower end a rounded stump; the bones of the forearm appear to be perfectly normal. This photograph was taken twenty-four years after the soldier was wounded; a primary excision of 4½ inches of lower end of humerus was performed. Contributed by W. G. Tracy, late captain and aid-de-camp, Syracuse, N. Y.

LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

The following table shows the additions made to the library during the fiscal year:

Description.	On hand June 30, 1897.	Added during fiscal year.	Total June 30, 1898.
	<i>Volumes.</i>	<i>Volumes.</i>	<i>Volumes.</i>
Medical journals	36,547	1,204	37,751
Medical transactions	5,506	393	5,899
Bound theses	1,899	66	1,965
Bound pamphlets	2,645	6	2,651
Other medical books	77,327	2,845	79,672
Total.....	123,924	4,014	127,938
Medical theses	59,140	2,725	60,863
Medical pamphlets	151,012	4,574	155,586
Total.....	210,152	7,599	216,890

α Of the total number of theses on hand June 30, 1897, there were 912 bound in 66 volumes during the year.

There were presented to the library during the year 467 books and 9,044 pamphlets and journals.

Volume III, second series, of the Index Catalogue includes the letter "C" and forms a volume of 1,100 pages. It will be ready for distribution at the usual time. The appropriation for Volume IV, second series, having been made, the manuscript is in course of preparation for the printer.

MEDICAL OFFICERS.

During the year ended June 30, 1898, there were 124 medical officers, United States Army, and 60 contract surgeons on duty in the field.

Appointments.—Nineteen assistant surgeons with the rank of first lieutenant.

Promotions.—Two surgeons with the rank of major to be deputy surgeons-general with the rank of lieutenant-colonel; 6 assistant surgeons with the rank of captain to be surgeons with the rank of major; 10 assistant surgeons with the rank of first lieutenant to be assistant surgeons with the rank of captain.

Deaths.—One surgeon with the rank of major; 1 assistant surgeon with the rank of captain.

Retirements.—Two deputy surgeons-general with the rank of lieutenant-colonel; 2 surgeons with the rank of major; 1 assistant surgeon with the rank of first lieutenant.

Resigned.—One assistant surgeon with the rank of captain; 1 assistant surgeon with the rank of first lieutenant.

A board was convened in Washington, D. C., September 27, 1897, to examine candidates for admission into the Army Medical Department. Of 45 candidates who were authorized to appear before the board, 34 presented themselves for examination, and of these only 6 were accepted; 7 were rejected on account of physical defects. Before another board convened in the same city May 2, 1898, 136 candidates were authorized to appear. Of 97 who presented themselves for examination 13 were accepted; 16 were rejected on account of physical defects.

HOSPITAL CORPS.

On June 30, 1897, there were in service 98 hospital stewards, 99 acting hospital stewards, and 513 privates, a total of 710.

The act of March 16, 1896, fixed the number of hospital stewards thereafter at 100 (appropriation for support of Army, July 1, 1896-June 30, 1897), two vacancies existing in the grade on July 1, 1897. The act approved March 1, 1887, organizing the Hospital Corps of the Army of the United States of America (section 7) empowered the Secretary of War to detail privates of the corps as acting hospital stewards "whenever the necessities of the service required it," thus providing at all times a sufficient number of that grade for the needs of the service. The same act (section 5) empowered the Secretary of War "to enlist, or cause to be enlisted, as many privates of the Hospital Corps as the service may require, and to limit or fix the number;" and further provided that "any enlisted man in the Army shall be eligible for transfer to the Hospital Corps as a private." It also directed that "they shall perform duty as wardmasters, cooks, nurses, and attendants in hospitals, and as stretcher bearers, litter bearers, and ambulance attendants in the field, and such other duties as may by proper authority be required of them." The enacting clause directed that the corps "shall consist of hospital stewards, acting hospital stewards, and privates, and all necessary hospital service in garrison, camp, or field (including ambulance service) shall be performed by the members thereof, who shall be regularly enlisted in the military service." It also attached the Hospital Corps permanently to the Medical Department, and provided that it should

not be included in the effective strength of the Army nor counted as a part of the enlisted force provided by law. Up to January 31, 1898, the wants of the service were fully supplied by the employment of 99 hospital stewards, 100 acting hospital stewards, and 519 privates.

The discipline of the corps may be inferred from the fact that up to May 31, 1898, only 1 hospital steward and 4 privates were discharged by sentence of general court-martial. During the period from July 1, 1897, to March 31, 1898, the gains and losses balanced each other so nearly that the total number in service in the corps oscillated only between 710 on June 30, 1897, and 723 on March 31, 1898.

The act of June 16, 1890, granting three months' furlough at the end of the third year of a five-year enlistment ceased to operate on November 1, 1897. This added greatly to the efficiency of the corps.

With the view of filling existing vacancies in the grades of hospital steward and acting hospital steward, and providing an eligible list from which to meet emergencies, examinations were held in November and December, 1897. Thirty-two candidates passed the examination for the position of steward, and 22 for that of acting steward, all of whom were appointed by the end of May, 1898. To provide for any increase of hospital stewards required by the establishment of a number of military posts, and the organization of expeditions to Alaska, I recommended an increase to 115, this being thought to be the lowest number that would meet the then existing conditions of peace.

ARMY MEDICAL SCHOOL.

I submit herewith the report of Col. Charles H. Alden, president of the faculty of the Army Medical School, which shows the course of study pursued and the excellent results attained:

ARMY MEDICAL SCHOOL,
Washington, D. C., April 20, 1898.

To the SURGEON-GENERAL OF THE ARMY.

SIR: I have the honor, as required by General Orders 78, Headquarters of the Army, September 22, 1893, to submit the following detailed report of the condition of the Army Medical School, of the instruction given during the session just ended, and of the relative proficiency of the pupils as determined by examinations held at the close of the course.

This the fourth session of the school began November 10, 1897, and ended April 1, 1898. The main courses of instruction have been given as laid down in the order establishing the school in 1893, namely, duties of medical officers, military surgery, military medicine, military hygiene, sanitary chemistry, clinical and sanitary microscopy, and hospital corps drill and first aid. Under authority of the War Department and direction of Colonel Sumner, commanding, instruction in riding was given at Fort Myer, Va., every Saturday morning by Lieut. H. A. White, Sixth Cavalry. A practical course in operative surgery was conducted by the professor of military surgery, as was done last year, and the student officers attended surgical clinics at Barnes Hospital, Soldiers' Home.

Auxiliary lectures have been delivered as follows: On military law, by Lieutenant-Colonel Davis, deputy judge-advocate-general; on mental diseases at the Government Hospital for the Insane, under the direction of the superintendent, by Dr. George W. Foster, assistant; on the Army Medical Library, by Dr. Robert Fletcher, F. R. C. S., Washington, and on parasites in man, by Prof. C. W. Stiles, Ph. D., of the Agricultural Department. The extension of the time of the session of the school, hereafter referred to, gave an opportunity for instruction in optometry, which was deemed very desirable. The didactic instruction was given by Capt. George D. DeShon, assistant surgeon, United States Army, the instructor in hospital corps drill and first aid; and practical instruction at the Episcopal Eye, Ear, and Throat Hospital, by Dr. W. N. Suter, late assistant surgeon, United

States Army, who kindly offered his services. The lectures and instruction outside the regular courses have been of great interest and benefit to the class, and the thanks of the faculty are due the gentlemen who gave them for their valuable aid.

The class in attendance on the full course was composed of six newly appointed medical officers, approved by the Army medical examining board in October, 1897. In addition, there were five older medical officers, either on leave or stationed in the city or vicinity, who took part, at least, of the practical courses in the pathological and chemical laboratories.

The daily order of duties for the session just passed is appended, marked A. There has been no interruption in the work of the school, and the student officers have, as a rule, been prompt in attendance and attentive to their duties.

In accordance with the recommendation of the faculty made at the close of the last session, that more time was needed for instruction than the then time of the session, four months, allowed, the session of the school was extended to April 1 by General Orders, No. 43, Adjutant-General's Office, July 6, 1897. The additional time has been very profitably employed in extending and amplifying the courses of instruction, especially in the course in operative surgery and sanitary microscopy.

Faculty meetings have been held on the first Monday in each month, as required by orders, and at other times when necessary.

At the examination held at the close of the session the relative proficiency of the student officers was found to be as follows:

Duties of medical officers: Higley, Webber, Page, Clayton, Ashford, Rauchfuss.

Military surgery: Clayton, Higley, Page, Ashford, Rauchfuss, Webber.

Military medicine: Higley, Page, Ashford, Webber, Clayton, Rauchfuss.

Military hygiene: Higley, Page, Webber, Clayton, Ashford, Rauchfuss.

Sanitary chemistry: Higley, Webber, Page, Ashford, Clayton, Rauchfuss.

Clinical and sanitary microscopy: Higley, Webber, Clayton, Page, Ashford, Rauchfuss.

Hospital Corps drill: Higley, Ashford, Page and Clayton equal, Rauchfuss, Webber.

The relative standing and percentages attained by each, taking all the branches into account, were as follows:

1. Asst. Surg. B. S. Higley.....	91	4. Asst. Surg. B. K. Ashford.....	72
2. Asst. Surg. Henry Page.....	78	5. Asst. Surg. H. A. Webber.....	65
3. Asst. Surg. J. B. Clayton.....	73	6. Asst. Surg. George Rauchfuss....	49

The closing exercises of the session were held on Friday, April 1, 1898, at 3 p. m. in the library hall of the Museum building. After introductory remarks by the president of the faculty, an address to the class was delivered by Prof. P. S. Conner, M. D., of Cincinnati, Ohio. His subject was "The contributions of the Army medical staff to medical science," and was treated in a most scholarly and interesting manner. It was not only gratifying as a record of the scientific achievements of the corps, but stimulating to the new members at this the beginning of their active career.

The standing of the class was then given by the president of the faculty, and certificates of attendance were delivered to the class by Surgeon-General Sternberg, who also announced the award of the Alexander H. Hoff memorial gold medal to Asst. Surg. B. S. Higley, he having attained the highest standing in the course of 1897-98 at the school.

Attention is respectfully invited to the reports of instruction in each branch by the professor or instructor therein, hereto appended, and marked B, C, D, E, F, G, and H.

The Alexander H. Hoff memorial gold medal (value \$40), the award of which was made at the closing exercises, was founded by Maj. John Van R. Hoff, surgeon, United States Army, now stationed at Vancouver Barracks, Wash. The medal was struck at the United States mint through the courtesy of the Secretary of the Treasury, and was very appropriate and tasteful. The foundation of this prize can not fail to afford a needed stimulus to the work of the young medical officers at the school, and the founder, Major Hoff, is entitled to the hearty thanks of the Department and faculty for his generous interest.

The faculty of the school continues to be gratified by the good reports of the efficiency and high standing of the young medical officers who have passed from their instruction.

Very respectfully,

C. H. ALDEN,
Assistant Surgeon-General, United States Army,
President Army Medical School.

A.

ARMY MEDICAL SCHOOL, WASHINGTON, D. C.

[Session of 1897-98, beginning November 10, 1897, ending April 1, 1898.]

ORDER OF DUTIES.

Daily, except Saturdays, Sundays, and holidays: 9 a. m. to 12 m., instruction in pathological laboratory; 1 p. m. to 2.50 p. m., instruction in chemical laboratory; 3 p. m., lecture. Saturdays: 9 a. m. to 10.15 a. m., instruction in Hospital Corps drill and first aid at Washington Barracks, D. C.; 11 a. m. to 12 m., instruction in equitation at Fort Myer.

There are no exercises on Sundays, Thanksgiving day, December 25 to January 1, inclusive, and Washington's birthday.

The lectures will be delivered as follows: Duties of medical officers, Wednesdays; military surgery, Thursdays; military medicine, Mondays; military hygiene, Tuesdays.

Hours for instruction in operative surgery and optometry will be announced hereafter.

Auxiliary lectures.—Military law, Lt. Col. G. B. Davis, deputy judge-advocate-general, March 21 to 25, 1898, inclusive; mental diseases (clinical), at Government Hospital for Insane, Washington, alternate Fridays, beginning November 19; the Army Medical Library, Dr. Robert Fletcher, F. R. C. S., Eng., Monday, January 24, 1898; parasites in man, Prof. C. W. Stiles, Ph.D., Department of Agriculture, dates to be hereafter announced.

Due notice of any change of programme will be posted on the bulletin board.

WALTER REED,

Major and Surgeon, United States Army, Secretary of the Faculty.

B.

DUTIES OF MEDICAL OFFICERS, ARMY MEDICAL SCHOOL, SESSION 1897-98.

By Asst. Surg.-Gen. C. H. ALDEN, U. S. A.

NOTE.—The subjects taken up were substantially the same as those treated in former years, though the extension of the course enabled the lecturer to treat more fully some of the more important subjects. As in former years, the course has been a practical one as far as possible, exercises being conducted in the examination of recruits, the sanitary inspection of posts, the preparation of official reports, certificates of disability and for sick-leaves, and other papers.

Thanks are due to Asst. Surg. A. N. Stark, United States Army, Washington Barracks, D. C., for valuable assistance in the instruction of the class in the examination of recruits.

Lecture I.—Preliminary. The duties of the army medical officer as they differ from those of the civil practitioner. The importance of his sanitary and administrative work. Military discipline; its nature and necessity, how it is secured, its obligation upon the medical officer. Changes in his position in the military establishment with progress in art of war and civilization. His rank, title, and command. The Geneva Convention and its principal provisions.

Lecture II.—Organization of the United States Army; staff departments and their duties. Geographical departments and distribution of troops; the service schools. Articles of War, origin and purpose. Army Regulations, their development from first issue in 1779 especially as affecting the medical officer. Manual for the Medical Department. Orders, general and special, circulars. Official correspondence, its channels and form. Practical exercises therein.

Lecture III.—Examination of recruits. Recruiting in foreign armies. Organization of United States recruiting service. Examination of voluntary recruits and drafted men compared. Requirements of the general Regulations and Medical Manual. Outline of mode of examination. Necessity for method and thoroughness.

Lecture IV.—Examination of recruits, continued. Principal causes of rejection of recruits. Discussion of disqualifying causes by regions. Tripler's Manual. The personal identification system; its object and method explained. Outline figure cards and mode of preparation.

Lectures V and VI.—Practical exercises at Washington Barracks, D. C., in examination of recruits and making out enlistment papers; record of physical examination and outline figure cards.

Lecture VII.—Medical attendance. The provisions of Army Regulations and Medical Manual. Persons entitled to it, to issue of medicines, and to admission to hospital. Sick call, how conducted. Records and reports required. Regulations and custom as to private practice of Army surgeons.

Lecture VIII.—The sanitary duties of medical officers; their importance, origin, and development. Paragraph 1393, Army Regulations. Duties advisory, not executive. Regular monthly and emergency inspection and reports. Two classes of defects, of construction and of administration. Subjects to be looked into and reported on. Points requiring special attention in inspecting barracks and other buildings.

Lecture IX.—Practical exercises in sanitary inspection at Washington Barracks, D. C. Student officers shown method, and points requiring particular attention pointed out. Notes taken by student officers and report required for examination.

Lecture X.—Certificates of disability for discharge. Regulations. Method of procedure. Points to be specially regarded. The Pension Bureau and its work in relation to Medical Department. Importance of care, accuracy and definiteness. Practicable exercises in preparing certificates.

Lecture XI.—Disposition of insane soldiers, admission to Soldiers' Home, to Army and Navy General Hospital, Hot Springs. Transfer of enlisted men on account of health. Methods pursued and papers required.

Lecture XII.—Certificates for sick leave for officers. Regulations. Forms. Points specially demanding attention. Importance of observing them fully. Practical exercises in preparing certificates for sick leave.

Lecture XIII.—Property responsibility and accountability. Regulations referring thereto. Mode in which public property may be received and disposed of, how accountability is incurred, and how the officer is relieved from it. Vouchers and returns. Obligation resting upon the medical officer for the proper care, the economical and authorized use of public property.

Lecture XIV.—Medical property. Special regulations of Manual taken up in detail. Requisitions, invoices, receipts, returns, their forms explained. Examination of articles supplied by Medical Department on deposit in the Army Medical Museum.

Lecture XV.—Service of hospitals. Regulations governing. Sketch of daily routine. Assignment of duties. Records kept, reports and returns required. Army ration. Hospital fund, how it accrues, how it is expended. Durable hospital fund property. Statements and returns.

Lecture XVI.—Construction and repair of hospitals and hospital steward's quarters. Appropriations. Regulations. Estimates and their preparation. Inspection of work and reports thereon. Sample plans of different styles of hospitals in use shown.

Lecture XVII.—Medical officers in the field. Importance of readiness for emergencies and detached service, inspection of field equipment, etc. Duties with scouting parties and larger commands, on the march, in camp, in action. Organization of the medical department of a division, brigade, and army corps. Duties on board transports. Field reports.

Lecture XVIII.—Duties of the medical officer in command of a hospital corps detachment. Subsistence, clothing, equipment, instruction. Methods of enforcing discipline, force of example, division of duties, employment in personal service, transfer, discharge, death. Records kept. Reports and returns required.

Lecture XIX.—Malingering, including concealment, feigning, and artificial production of disabilities. The principal diseases and injuries which are the subjects of malingering and the mode of detection.

UNITED STATES SOLDIERS' HOME,
Washington, D. C., April 12, 1898.

SIR: I have the honor to submit the following brief report of the course in military surgery—didactic, operative, and clinical—during the past session of the army medical school.

The didactic course was given in eighteen lectures of one hour each on the weapons of war and the principles and practice of military surgery, including hospital administration, the details of which were similar to those published in the Surgeon-General's last annual report. (See appended note.)

The operative course embraced (1) operations on the cadaver by the student officers under direction of the instructor; (2) operations at Barnes Hospital surgical clinics where they had opportunity in turn to assist. The material for the operative course on the cadaver consisted of one female and ten male subjects in excellent condition. The total amount of time devoted to it was 34 hours on twenty different days, or an average of 1.7 hours per day during which the following operations were done:

Ligation of arteries.....	83
Amputations, excisions, and resections.....	61
Miscellaneous operations.....	71
Dissections.....	12

The surgical clinics at Barnes Hospital were on Sunday of each week in order not to interfere with the programme of the school on other days. The students were thus enabled to witness and take part in a considerable number of major and minor operations of a practical character and to have time at the hospital to study and follow up from week to week the course and results in every case. Forty-eight cases were studied in this way.

Experimental firing with the new rifle was carried on for practical study of the effects of the new small-caliber bullet on various objects, including three freshly amputated limbs which were utilized for that purpose.

Very respectfully,

W. H. FORWOOD,
*Colonel, Assistant Surgeon-General, U. S. A.,
Professor Military Surgery.*

PRESIDENT ARMY MEDICAL SCHOOL,
Washington, D. C.

APPENDED NOTE.

Lecture I.—Introductory. The care of sick and wounded in time of war. Early history among different nations. Evolution of modern methods. Ancient and modern campaigns. Surgical literature of the subject. Influence of warfare on the progress of surgery.

Lecture II.—Military weapons, old and new, contrasted in their relation to military surgery. Evolution of the new small-caliber firearms; the new steel-cased bullet. The new artillery field guns and missiles; lightness, mobility and range, rapidity of fire, destructive effect. Chemical and physical properties of the smokeless powders. Specimens of ancient and modern guns, pistols, and side arms, new and old missiles and powders. Target maps. Charts giving ballistic data of the small-caliber rifles now in use among different nations.

Lecture III.—Experimental effects of the new small-caliber steel-cased rifle projectile and of the old lead bullet on inanimate objects. Openings of entrance and exit and the tracks of the bullet through various substances illustrated. Effects upon open and closed vessels with gaseous, fluid, semifluid, moist, and dry contents shown. Initial velocity, rotation, penetration, active energy, and heat produced in the barrel and by impact. Hydrodynamic theory of the so-called explosive effects of missiles. The trajectory, angle of ascending and descending limb, maximum ordinate, effective range and velocity at different ranges. Practical deductions. Numerous specimens, with tables, charts, plates, and drawings.

Lecture IV.—Effects of the small-caliber steel-cased bullet as a wound-producing missile on animal structures. Modifying influence of higher or lower velocities, larger or smaller caliber, and of greater or lesser resistance in the tissue. Moist and solid structures; fluid in the hollow viscera. Stability of the bullet, deformation, rupture, lodgment, lodgment of fragments. Literature of the subject, statistics, charts, and illustrations from various sources.

Lecture V.—Explosive projectiles or those used with the artillery arms. Character and relative frequency of wounds by these missiles. The use of hollow explosive bullets with small arms; history and character; prohibition by international law. Illustrative cases and specimens.

Lecture VI.—General character of gunshot wounds made by modern firearms. Relative percentage of slight and severe wounds; mortality. Tracks of missiles through various structures. Fragments of compact bone as secondary missiles. Other secondary missiles. Lines of perforation, injury to vessels, nerves, and viscera. Influence of modern armaments on military tactics and the handling of wounded.

Lecture VII.—Hemorrhage and shock. Symptoms, comparison, and differential diagnosis. Character and frequency of gunshot hemorrhage, immediate, primary, and secondary. Regional injuries to vessels and hemorrhage; nature, diagnosis, prognosis, and treatment. Ligation in continuity and in the wound. Causes and management of secondary hemorrhage. Hemorrhage on the field, mortality, the tourniquet, asepsis. Nature, symptoms diagnosis, prognosis, and treatment of shock. Statistics, illustrations, and specimens from the museum.

Lecture VIII.—Gunshot injuries of the head and neck. General and specific characters. Symptoms, diagnosis, prognosis, and treatment of common forms. Sequelæ. Illustrative cases and specimens.

Lecture IX.—Gunshot wounds of the chest and spine; superficial, penetrating, perforating, symptoms, complications, management. Illustrative cases from recent reports of chest wounds with the new small-caliber rifles.

Lecture X.—Gunshot wounds of the abdomen; symptoms, diagnosis, prognosis, and treatment. Penetrating and perforating wounds with and without visceral lesions, methods of differential diagnosis. Wounds in the different viscera, diagnostic symptoms, relative frequency, mortality. Laparotomy, methods of dealing with intestinal, hepatic, and other abdominal gunshot wounds. Comparative mortality under operative and expectant treatment. Illustrative cases.

Lecture XI.—Gunshot wounds of the extremities; relative frequency, description, prognosis, and management. Illustrated by numerous clinical reports showing the general character, course, and results of these injuries by the new small-caliber steel-cased bullet at various ranges. Colored plates of frozen sections and specimens.

Lecture XII.—Treatment of gunshot injuries. General treatment in hospital. Treatment of special cases. Treatment on the field. At the first-dressing stations, at the ambulance stations. Resources, material, deficiencies, contingencies. The question of asepsis in field practice, the protection of wounds, methods and practical suggestions.

Lecture XIII.—First aid to the wounded. Removal from firing line. Classification. Diagnosis tags. First-dressing stations, ambulance stations, field hospitals. Means of transportation. Brigade pack mules. Advance ambulance detachment.

Lecture XIV.—Practical application of the principles of military surgery discussed in foregoing lectures. Theoretical and practical lines of medical aid. Experience gained in past wars. Importance of treating for a time all the more severely wounded at or near the battlefield. War maps and charts.

Lecture XV.—Hospital administration. General principles which underlie administrative duties. Personal knowledge of details. Organization. Frequent inspection. Habits of industry, neatness, and order. Evil effects of idle time. Practical illustrations, blanks, forms, and methods.

D.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
UNITED STATES ARMY MEDICAL MUSEUM AND LIBRARY,
Washington, D. C., January 31, 1898.

SIR: I have the honor to report that I have concluded my course before the class attending the session 1897-98 of Army Medical School, on the subject of military medicine.

The course has included nine lectures, a synopsis of which is herewith appended.

In the absence of clinical facilities in connection with the school, and in view of the fact that the class has but lately finished the usual instructions furnished by medical college and hospital, I have dealt largely with the historical and geographical features of disease and epidemic invasion affecting armies in the past, as well as the enunciation of the practical principles to be observed for the prevention of disease and the conservation of the health and efficiency of our Army.

I am, very respectfully,

D. L. HUNTINGTON,
Deputy Surgeon-General, United States Army.

Col. C. H. ALDEN,
Assistant Surgeon-General, U. S. A., President Army Medical School.

MILITARY MEDICINE, COURSE 1897-98.

Lecture I.—Military medicine. Definition and application. Sketch of early history of military medicine and its literature. Modern military medicine. Consideration of the soldier as the unit of military organization with reference to qualities demanded for military service. General remarks on diseases of armies. Intimate relation of military medicine, surgery, and hygiene. Considerations affecting the health of armies in active military operations in time of war; conditions of peace; water and food supplies; climate; ochlesis; malarial influences; scorbutic influences; moral conditions; social or individual conditions, with general observations and illustrations.

Lecture II.—Diseases prevalent in armies in time of peace, and particularly with reference to the United States Army. Geographical extent of the United States; climatic features; geographical features; ethnological and sociological features; military posts, their location and purposes. Duties and occupation of soldiers in time of peace with relation to health and disease. Diseases most commonly met with at all posts; diseases of the digestive system; diseases of the respiratory system, etc.

Lecture III.—Conditions of health and disease in armies in time of peace, continued; diseases of the circulatory system; diseases of the nervous system; rheumatic affections; venereal diseases; alcoholism. General remarks on army practice.

Lecture IV.—Diseases and conditions affecting troops on field duty and during marches, whether in peace or war. Mobilization and centralization. Transportation by land or water. Conditions to be observed as affecting health and comfort of troops on marches, with general observations on marching troops, and status of active field duty.

Lecture V.—Specific infection diseases: Measles, scarlet fever, diphtheria, and smallpox. Vaccination and revaccination. Remarks on army diarrhea and dysentery. Importance of military hygiene with reference to invasion and diffusion of disease.

Lecture VI.—Specific infection diseases, continued. Malarial fevers and malarial cachexia, with historical sketch.

Lecture VII.—Specific infection diseases, continued. Typhoid fever in armies, epidemic influenza, dengue, and the febricula, with historical sketches.

Lecture VIII.—Specific infection diseases, continued. Typhus fever, yellow fever, cerebrospinal meningitis, with historical account of each.

Lecture IX.—Specific infection diseases, continued. Asiatic cholera, with historical review of epidemics. Glanders, with its relation to the military service. General observations on preventive medicine.

E.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., March 29, 1898.

SIR: I have the honor to report that the course on military hygiene at the Army Medical School, session of 1897-98, was concluded on the afternoon of March 25 last.

I inclose a summary of the lectures, from which it will be seen that the whole subject of water had to be omitted on account of want of time to deal adequately with it. I endeavored, however, while at work on this subject in the laboratory course, to bring to the notice of the class all the prominent points connected with water supplies, so as to remedy the deficiencies of the lecture course.

Respectfully,

CH. SMART,

Deputy Surgeon-General, U. S. A., Professor of Military Hygiene.

Col. C. H. ALDEN,

President of the Faculty, Army Medical School.

COURSE OF LECTURES ON MILITARY HYGIENE.

1. History of hygiene, including a review of the influence of plague, leprosy, smallpox, typhus and typhoid fevers, cholera, and yellow fever on its progress. Quarantines and maritime sanitation.

2. Duties of health officers. Sick rates and mortality statistics.

3. The essentials of good camping grounds. Plans of military camps.
4. The tents and huts of field service.
5. Personal cleanliness. Marches. Physical training. Plans of permanent military posts.
6. Company barracks: Cellars, basements, and casemates. Lighting and warming of barracks.
7. Warming by open fireplaces, stoves, hot air, hot water, and steam.
8. Physical aspects of air, including pressure, light, heat, moisture, and electrical condition; general circulation and local circuits; storms; climate.
9. Medical climatology. Chemical aspects of air; respired air.
10. Ventilation; calculation of ventilation from results of analysis of air. Impurities of air.
11. Sewer air. Sewage; dry earth conservancy. Removal of liquid wastes; cesspools; pneumatic methods.
12. Removal of sewage by water carriage. The soil pipe and house drain, with the traps, vents, and overflow of the plumbing fixtures.
13. Sewers. Disposal of sewage. Pollution of public water supplies by sewage. Chemical treatment of sewage.
14. Disposal by irrigation, by methods of filtration, by electrolysis, and by special methods for promoting nitrification. Disposal of garbage; crematories.
15. Food: Its proximate principles, percentage of nitrogen, calorific value, and mechanical equivalent.
16. Calculation of the available energy in specified rations or dietaries. The emergency ration.

F.

SURGEON-GENERAL'S OFFICE, WAR DEPARTMENT.

Washington, D. C., March 29, 1898.

SIR: I have the honor to report the close of the work of the session 1897-98 in the chemical laboratory of the Army Medical School. This course occupied the hours 1 to 3 p. m. of each regular school day during the session. After some time spent in qualitative analysis to secure familiarity with laboratory methods, quantitative determinations, gravimetric and volumetric, were made of most of the substances that are of importance in medical and sanitary chemistry. Special subjects were then taken up, such as air and ventilation, potable waters, urine, urinary calculi, the proximate principles of food, milk, butter, baking powders, and the staples of the soldier's ration. Particular attention was given during the course to the separation, identification, and quantitative estimation of all notably poisonous substances.

It is gratifying to me to have to report the evident interest taken by the class in this laboratory work. As a rule the members were at work during part of their midday recess, and not infrequently experiments were completed by voluntary work on Saturday afternoons.

Capt. P. R. Egan was a regular and earnest student until the necessities of the service caused his removal for duty at Fort Hancock, N. J. Capt. M. M. Brewer spent two months of a leave of absence in attendance on the course, and Capt. A. N. Stark was present when his regular duties at Washington Barracks, D. C., did not interfere.

A written examination on the subjects studied during the course was held on the afternoon of March 28. I inclose with this the written papers of the class, a copy of the questions used, the grading of each student on these questions, and the grading given by me as the result of observation during my supervision of the laboratory work of the session.

Respectfully submitted.

CH. SMART,

Deputy Surgeon-General, U. S. A., Director of the Sanitary Laboratory.

Col. C. H. ALDEN,

President of the Faculty, Army Medical School.

G.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
UNITED STATES ARMY MEDICAL MUSEUM AND LIBRARY,
Washington, April 15, 1898.

SIR: I have the honor to submit the following report of the work accomplished in the pathological laboratory of the Army Medical School for the session 1897-98:

As during the preceding year, the first three months of the session were devoted to a course in bacteriology. This embraced, in addition to the acquirement of the necessary technique, a study of pathogenic bacteria, including the microorganisms of suppuration, erysipelas, croupous pneumonia, splenic fever, diphtheria, typhoid fever, Asiatic cholera, and actinomycosis. While other pathogenic bacteria were studied, those above enumerated received particular attention by the student officers.

As in former sessions, numerous serum tubes taken from various forms of throat diseases were placed at my disposal through the courtesy of the health officer and the bacteriologist of the board of health of this District, which enabled the students to acquire thorough familiarity with this important diagnostic work, as well as confidence in their own technical skill. Widal's serum reaction received, also, special attention while the bacillus typhosus was being studied.

The latter part of the session was devoted, as heretofore, to the microscopical study of normal and pathological blood, sputum, urine, and tumors. The pathological lesions produced in tissues by various important microorganisms were also carefully examined.

I regret to have to state that the work accomplished by this class was not in all respects satisfactory. Lack of interest and superficial routine characterized the work of two of the members of the class. Feeling secure in the possession of a permanent position and income, these young medical officers have early begun to show a disposition to do as little as the regulations will allow. I am pleased to add that the work of the other members of the class was quite praiseworthy.

Very respectfully,

WALTER REED,
*Surgeon, United States Army,
Professor of Clinical and Sanitary Microscopy.*

Col. C. H. ALDEN, U. S. A.,
President of the Faculty, Army Medical School.

H.

WASHINGTON BARRACKS, D. C., *March 21, 1898.*

SIR: I have the honor to submit the following report of the course of instruction in Hospital Corps drill and first aid given during the present session of the Army Medical School.

During the first two months of the course the student officers were drilled one-half hour each day in the school of the soldier, squad, and litter.

During the remainder of the course they attended the Saturday morning inspections of the Hospital Corps company of instruction at this post.

Immediately after inspection each student officer was required to take charge of a litter squad and to drill it in all the movements provided in the drill regulations for the Hospital Corps. Particular attention was given to the carriage of each officer, to his enunciation and method of giving commands, and to his attitude toward the enlisted men under his charge.

When sufficiently advanced each officer, in turn, drilled the company as a whole and commanded it at inspection.

During inclement weather the methods employed in instructing Hospital Corps men in the principles of first aid were shown, the field equipment of the medical department was exhibited and explained, and instruction given in the manual of the sword.

It has been observed that the interest of student medical officers in the purely military features of their profession is keenest during the few months immediately following their appointment, and it is believed that during this formative period, residence in a military post under some form of surveillance would result in habits of precision and discipline which would be of great benefit in the management of hospitals and the control of men. It is further believed that residence during this period in a large city, as under the present system, results in a looseness of method

and a contentment with the same which will ever be a hindrance to a medical officer's full success. I, therefore, renew the recommendation made by my predecessors that future classes of student officers be attached to the Hospital Corps company of instruction at Washington Barracks during their course.

In addition to drill and first aid I have been charged during the present session with the instruction of the class in the principles of optometry, which was given as follows:

Didactic lectures, four hours; practical demonstration of shadow test with artificial eye, each student officer, three hours; clinical work in refraction at Episcopal Eye, Ear, and Throat Hospital (given through the kindness and in the service of Dr. W. N. Suter, late assistant surgeon, United States Army), each student officer, four hours.

Owing to the limited time assigned this subject only the most elementary instruction could be imparted. Should this course be continued it is recommended that at least one exercise a week be given throughout the session, so that each student officer might do sufficient practical work to feel some confidence in his results.

Very respectfully, your obedient servant,

G. D. DESHON,
*Captain and Assistant Surgeon, United States Army,
Instructor Army Medical School.*

The PRESIDENT, ARMY MEDICAL SCHOOL,
Washington, D. C.

RECRUITING.

The total number of men examined for enlistment during the year 1897 was 13,139, of whom 12,131 were white and 1,008 were colored. The number accepted was 9,226, or 702.19 out of every thousand examined. The physique of the colored candidates was apparently of a higher order than that of the white men, as their ratio of accepted men was 786.71 per thousand as compared with 695.16 among the white candidates. White men to the number of 33.30 and colored men to that of 16.86 per thousand declined enlistment. The rate of rejections on primary examination was 271.54 among the white and 196.43 among the colored candidates, giving a mean of 265.77 rejections per thousand of those examined. This shows an improvement in the character of the candidates, for in 1896 the ratio of rejections was 371.65; in 1895, 473.45, and in 1894, 508.50. The care taken in the examination of recruits has not in any way been relaxed during recent years.

Of every thousand candidates examined 90.19 were rejected on account of imperfect physique, under weight, under height, etc.; 37.14 for diseases of the eye, 27.55 for diseases of the circulatory system, 23.52 for diseases of the genito-urinary system, 12.48 for diseases of the digestive system, 10.80 for venereal diseases, while 10.73 were rejected on account of bad or doubtful character or unsatisfactory references, 7.15 as generally unfit or undesirable, and only 2.43 on account of illiteracy, imperfect knowledge of the English language or mental insufficiency.

Of every thousand of the accepted men 742.47 were natives of the United States, 80.53 were born in Germany, 77.28 in Ireland, 23.20 in England, 13.98 in Sweden, 13.22 in Canada, 7.48 in Denmark, and 7.05 in Austria; the remainder in various other countries.

Of the 9,226 accepted men 38 were under 20 years of age, average 17.2 years; 4,021 were between 20 and 24 years of age, average 22.1 years; 2,581 were between 25 and 29 years, average 26.7; 1,098 between 30 and 34 years, average 31.7; 735 between 35 and 39 years, average 36.8, and 753 were over 40 years of age. The average age of the whole number was 27.6 years.

The average height was 67.59 inches. The native white man was

taller, 67.75 inches, than the colored man, 67.56 inches, or the foreign-born recruit, 67.20.

The average weight was 147.07 pounds, the colored man being the heaviest, 150.28 pounds. The foreign-born recruit was slightly heavier, 147.55 pounds, than the native American, 146.47.

The average chest expansion was from 34.42 to 37.38 inches. The native white man had an expansion of 3.01, or from 34.25 to 37.26; the foreign born 2.97 inches, or from 34.84 to 37.81, and the colored man 2.73 inches, or from 34.28 to 37.01.

IDENTIFICATION OF DESERTERS AND OTHER UNDESIRABLE MEN.

During the year ending June 30, 1898, 3,075 transcripts of the identification cards of 1,406 delinquent ex-soldiers were filed among the classified descriptions of undesirable men, an average of 2.19 per man, as compared with 2.63 for the antecedent period; and 3,792 transcripts, including all those of 340 men were canceled, some to be replaced by later descriptions, but most of them withdrawn permanently, as a result of the revision of these files mentioned in my last annual report. On June 30, 1898, there remained 32,494 transcripts, an average of 2.37 each for 13,706 delinquent soldiers whose enlistment would be contrary to law.

June 30, 1897, 68,834 identification cards were on file for recruits, and 4,222 for released military convicts and soldiers discharged dishonorably or without honor. The receipts for the following twelve months were 26,231 and 586 respectively, bringing the totals, June 30, 1898, up to 95,065 and 4,808. Of the 26,231 recruit cards received, 6,488, or 25 per cent, were made out at the soldier's second or later enlistment, and took their place at once with the previous card or cards of the man in the alphabetical file; 19,743, or 75 per cent, were for first enlistments, and ordinarily would all have been compared with the transcripts before going to the alphabetical file, but the rush of these cards incident to the increase in the Regular Army, beginning in April, without corresponding increase in clerks available for the work (more cards of first enlistment were received in May, 1898, than during the whole calendar year 1897, and more in June than during the two previous calendar years) made it impracticable to compare them all. Accordingly, those of 21 years of age or less, 5,697, or 22 per cent, being the least likely to have had prior service, have been placed in the alphabetical file without the usual examination. Some of these men may thus escape identification for the present, but the number, if any, will, it is believed, be inconsiderable. The remainder of the recruit cards, 14,046, or 53 per cent, were passed for search.

From July 19, 1890, when the first identification was made, to June 30, 1898, the whole number of identifications by means of the cards was 941 (deserters, 423; soldiers dishonorably discharged from former service, 289; others, 229). In 210 cases (deserters, 131; dishonorably discharged soldiers, 38; others, 41) the identification was of value only to connect the several enlistments of men no longer in service. Three cases were applicants for enlistment identified at the instance of recruiting officers.

In 728 cases the men were in service and amenable to punishment when identified—291 as deserters, 249 as soldiers dishonorably discharged from former service, and 188 as frauds of a minor grade. Of these, 58 deserted before final disposition was made of their cases, 536 were discharged the service by sentence of court-martial or by orders

from the Adjutant-General's Office, 96 were held to service for the time being, and 38 at present await final action so far as this office is advised.

Of the whole number of identifications, 18 were made in the calendar year 1890, 111 in 1891, 215 in 1892, 104 in 1893, 110 in 1894, 121 in 1895, 108 in 1896, 68 in 1897, and 86 during the first six month of 1898. Of the identifications of men still in service, 18 were made in 1890, 88 in 1891, 123 in 1892, 88 in 1893, 80 in 1894, 101 in 1895, 95 in 1896, 52 in 1897, and 83 to June 30, 1898.

In 1895 4,929 recruit cards were examined and 121 were identified, 24.55 per thousand; in 1896, 4,658 cards, 108 identifications, 23.19 per thousand; in 1897, 4,453 cards, 68 identifications, 15.27 per thousand; and for the first six months of 1898, 4,321 cards, 86 identifications, 19.90 per thousand.

A review of the conditions prevailing in the Army which led to the adoption of the card system in 1889 is interesting. Before that year, when soldiers were practically free to desert and reenlist at will without any risk except that of accidental recognition, the desertions amounted annually to from 10 to as much as 25 per cent of the enlisted strength. Men would enlist, desert, enlist again and desert again, in a circuit around the military posts until the prevalence of the offense became notorious and the example infectious to the young recruit. The outline-figure card was devised to identify these rounders and to prevent their subsequent enlistment. It has succeeded beyond expectation; over a thousand cases of identification in the eight years to October 20, 1898, testify to its efficiency. Meanwhile, the percentage of desertions has notably diminished. The following statement of desertions for the twenty-five fiscal years from 1873 to 1897 (the latest data accessible) is drawn from the published reports of the Adjutant-General:

Year.	Num- ber of deser- tions.	Year.	Num- ber of deser- tions.	Year.	Num- ber of deser- tions.	Year.	Number of deser- tions.
1873.....	7,271	1881.....	2,361	1889.....	2,835	1894.....	1,073
1874.....	4,606	1882.....	3,741	1890.....	2,344	1895.....	1,165
1875.....	2,521	1883.....	3,578	1873-1890.....	a 52,676	1896.....	1,365
1876.....	1,844	1884.....	3,672	1886-1890.....	b 11,953	1897.....	1,051
1877.....	2,516	1885.....	2,927	1884-1890.....	c 18,552	1891-1897.....	d 9,221
1878.....	1,678	1886.....	2,090	1891.....	1,503	1891-1895.....	e 6,805
1879.....	1,965	1887.....	2,240	1892.....	1,382		
1880.....	2,043	1888.....	2,444	1893.....	1,682		

a Average, 2,926.

b Average, 2,391.

c Average, 2,650.

d Average, 1,317.

e Average, 1,361.

For nearly the whole of this period the authorized enlisted strength was in round numbers 25,000. In 1873 and 1874 it was somewhat greater. The outline-figure card of recruits was called for in June, 1889, but no identification was made by means of it until July, 1890, so that it could have no effect in discouraging desertions prior to that time. Taking, then, the fiscal year 1891 as the first of the operation of the card system, an immediate lessening in the number of desertions is noted, 1,503, against 2,344 for the preceding year. The five years, 1886 to 1890, immediately preceding the card system, furnished an average of 2,391 desertions per annum, while the five years 1891 to 1895, under the card system, give only 1,361; a difference of more

than 1,000 per annum. Again, comparing the seven years 1891 to 1897, during which the preventive value of the card might be expected to appear, with the preceding seven years, 1884 to 1890, more decided results are reached, viz, 1,317 desertions per annum with the card, against 2,650 without it, a difference of 1,300 per annum in favor of the card—over two regiments of infantry on a peace basis and more than a full regiment in time of war. Since the card was adopted the largest number of desertions for any year was 1,682, while before the card was adopted 1,678 was the lowest number for any year. Of the twenty-five years tabulated the last year, 1897, shows the smallest number of desertions.

The falling off in the rate of desertion that has followed the introduction of the outline-card system of identification is believed for the most part to be due to its influence. Other measures have without doubt contributed in some degree to this diminution. More rigorous inquiry as to the character and fitness of applicants for enlistment has resulted in a better class of recruits. Better provision has been made for housing, feeding, and entertaining the soldier at military posts. Safeguards have been established by executive order against oppressive and unequal punishments for infractions of discipline. Moreover, the privilege of purchasing discharge authorized by the law of June 16, 1890, affords an honorable method of leaving the Army to such as are dissatisfied with their position. This privilege, however, under the regulations prescribed for its exercise, is limited to the second and third years of enlistment. Remembering that soldiers forehanded enough to save money to purchase their discharge are not usually of the class who swell the statistics of desertion, and also that desertions occur chiefly among first-year men, it is obvious that the purchase of discharge is so conditioned as only remotely to influence the soldiers most likely to desert, while the liberation of those who do buy their discharge involves the presence in the Army of an increased number of first-year men to fill the vacancies so occasioned. The measures here alluded to have doubtless had some share in diminishing the rate of desertion, but they would scarcely have produced the remarkable change indicated in the table if the soldier had continued at liberty to leave the service and return to it at his own convenience.

Confirmation of this view is found in the gradually lessening number of identifications during the last few years of normal recruiting. One hundred and twenty-one in 1895, 108 in 1896, and 68 in 1897, show how well the repeater was learning the danger of fraudulent enlistment. These normal conditions continued during January and February, 1898, with 3 identifications; but in March and April, along with the additional men for two new artillery regiments, there were 22 identifications; while the extraordinary accession of recruits to place the Army on a war footing was attended by a still greater increase—33 in May, 28 in June, 33 in July, 34 in August, 26 in September, and 30 for the first twenty days in October, or 184 for the five and one-half months, a number without parallel for any other similar period during the existence of the system. The delinquents obviously believed that they could, in the rush, get back into the Army without detection, and have thus afforded the most valuable evidence as to what their general practice would be in normal times were it not for the deterrent effect of the outline card.

In this connection I quote from the Adjutant-General's report for 1891:

I beg to invite attention to the enormous expense entailed upon the Government by the crime of desertion. From January 1, 1887, to June 30, 1891, twenty-four and one-half years, the number of desertions from the Army was 88,475. It is estimated that the average expense to the Government to replace a deserter is \$260; that is to say, to replace a recruit in the status in which the deserter was at the date of his desertion. This amount is the average expense on account of pay, clothing, and subsistence received by the deserter during his service, and the cost of transportation to the place from which he deserted. As the largest number of desertions occur before the men have rendered any service of value to the Government, the expense of replacing the 88,475 men, which foots up to the enormous sum of \$23,003,500, has been an actual loss to the Government without the least compensating advantage.

It costs, therefore, a good deal to recruit an army depleted by desertion. The influence that diminishes the number of desertions diminishes the cost of recruiting. The system that prevents 1,300 desertions per annum, or a considerable proportion of 1,300, saves a large sum on recruiting account. But the identification system has a higher value in its effect on the morale of the Army. Nothing is more demoralizing to troops than frequency of desertion and immunity of the deserters from punishment. Deserters by the act of desertion prove their unreliability as soldiers. They are undesirable in the ranks, but they are not the only class of undesirable men. Among these are included men who have been expelled from the Army by dishonorable discharge or discharge without honor. One bad man may corrupt a garrison composed chiefly of youths of unformed character. The law prohibits the enlistment of these undesirable men under appropriate penalties; but the law without practical measures to carry out and enforce its provisions would effect little. These practical measures are substantially summed up in the outline-card system of identifying the delinquent soldier upon his reentering the service. The system points out the military offender for punishment, and its history justifies the claim that it is a work of serious and important value, the results of which have vindicated the judgment of those officers of the Medical Department who brought about its adoption.

HEALTH OF THE ARMY.

The health of the Army during the calendar year 1897 was excellent, as may be seen from the following statement of its sick rates: The admissions for disease and injury during the year amounted to 1,186.61 per thousand of the strength present as compared with 1,110.39 in the previous year, with 1,258.89 the average annual rate of the previous decade, and with 1,089.73 the lowest rate of our Army, recorded in the year 1894. The rate for disease was 896.53, the lowest rate, recorded in 1896, having been 830.65. The number constantly sick, or the rate of nonefficiency, was 35.85 per thousand of strength, as compared with 33.97 during the previous year, with 40.26 the average annual rate of the previous decade, and with 33.89 in 1895, the lowest recorded rate. The average number of days lost on account of sickness for each man of the Army was 13.08, as compared with 12.43 in 1896, and with 14.64 the average annual rate of the preceding decade. The rate of discharge on account of disability was 9.61, the lowest recorded rate, as compared with 10.15 in 1896 and with 19.78 the annual rate of the previous decade. The total death rate for the year, 5.11, and the death rate from disease, 3.14, were also lower than the lowest rates

heretofore recorded, 5.16 for disease and injury in 1895, and 3.83 for disease alone in 1896.

The admission rate of the white troops for the year was 1,180.84, for the colored troops 1,248.61, while the rates of nonefficiency were respectively 35.72 and 37.24 per thousand of strength. In my last annual report I noted the gradual improvement in the health of the colored troops which in 1896 culminated in rates of admission and nonefficiency considerably lower than those of the white commands. The increased rates of the past years were mainly due to venereal affections, rheumatism and myalgia, bronchitis, and disorders of the digestive system.

The total number of discharges for disability was 263, of which 208 resulted from disease and 55 from injuries. Forty-nine discharges were occasioned by diseases of the nervous system, 31 by consumption, 25 by rheumatism and myalgia, and 20 by heart disease. Excluding small posts, the largest rate of discharge, 37.27, was furnished by 6 cases at Whipple Barracks, Ariz. The largest absolute number at any one post was 10 at Fort Huachuca, Ariz, giving a rate of 33.90.

The deaths numbered 140—86 from disease and 54 from injuries. Gunshot wounds occasioned 19 deaths; typhoid fever, consumption, and disease of the heart 9 each. Five deaths, the largest number occurring at any one post, were reported from each of seven posts: Fort Riley, Kans.; the Presidio of San Francisco, Cal.; Fort Sheridan, Ill.; Fort Sam Houston, Tex.; Columbus Barracks, Ohio; Fort Meade, S. Dak., and Fort McPherson, Ga.

HEALTH OF THE MILITARY DEPARTMENTS.

The admission rate varied in the military departments from 784.44 per thousand of strength in the Department of the Columbia to 1,522.14 in the Department of Texas, and the rate of nonefficiency from 25.65 to 39.65 in these same departments; the discharge rate, from 4.59 in the Department of the Platte to 13.93 in the Department of the Colorado, and the death rate from 3.15 in the Department of California to 7.27 in the Department of the Platte.

DEPARTMENT OF THE EAST.

Average strength, 8,018 men; rate of admission, 1,260.04 per thousand of strength; nonefficiency, 35.83; discharge, 8.85; death, 5.61. These rates do not differ much save in a slight excess of admissions from the average rates of the Army, and the excess of admissions was the result of an increased prevalence of venereal diseases. Fort Barancas had the largest rates of any post in this department—admission 2,000 and nonefficiency 77.34 per thousand of strength, the excess due to the great prevalence of malarial and venereal diseases and injuries. Fort Wadsworth had the high admission rate of 1,907.22, but its nonefficiency was only 37.17; bronchitic attacks, diarrheal diseases, and injuries constituted the excess of admissions. Fort Myer, Washington Barracks, and St. Francis Barracks followed, with 1,818.50, 1,759.32, and 1,777.78, respectively, as their admission rates, and 51.65, 47.48, and 40.41 as their rates of nonefficiency. The excess was due at the first-mentioned post chiefly to malarial diseases and injuries; at the second, to malarial diseases, and at the last, to disorders of the digestion, injuries, and malarial affections. Fort Adams had an admission rate of 1,676.06, with a nonefficiency of 51.68, and Fort Slocum had

a similar admission rate, but with only 36.92 of constant sickness. Injuries and diarrheal diseases constituted the excess at the former post, and injuries, tonsillitis, and constipation, alcoholism, and neuralgia at the latter. Forts McPherson, Thomas, and Monroe and Jefferson Barracks had both rates larger than the average of the Army, while Willets Point, West Point, and Madison Barracks had the nonefficiency comparatively small, although the admission rate was large. The rates at Columbus Barracks did not differ much from the army average. The other posts in the department had low rates. Fort Ethan Allen, for instance, had 931.62 admissions and 28.86 of constant sickness; Fort Hamilton, 742.05 and 31.32, and Fort Porter, only 546.15 and 19.18.

DEPARTMENT OF THE MISSOURI.

Average strength, 4,341 men. Rate of admission, 1,188.89 per thousand of strength; nonefficiency, 36.25; discharge rate, 6.91; death rate, 5.30. The rate for discharge is low, while the other rates are similar to those of the Army generally. Fort Riley, Jefferson Barracks, and Fort Leavenworth had the highest rates in this department, the admissions being, respectively, 1,484.08, 1,426.13, and 1,251.88, and the nonefficiency 41.70, 43.69, and 43.78. At Fort Riley the excess of admissions was due to venereal and diarrheal affections, rheumatism, boils and abscesses, and injuries; at Fort Leavenworth to malarial and venereal diseases, and at Jefferson Barracks to venereal diseases, tonsillitis, bronchitis, and injuries, while malarial and diarrheal diseases at this post were below the average. Fort Logan H. Roots had the admission rate larger and the nonefficiency smaller than the average army rates, and the reverse of this held good at Fort Wayne. The average rates prevailed at Forts Reno and Sill, while the rates at Forts Brady and Sheridan were below the average, being at the former post 760.18 and 25.75, and at the latter 903.92 and 28.05.

DEPARTMENT OF DAKOTA.

Average strength, 2,513 men. Rate of admission, 975.33 per thousand of strength; nonefficiency, 33.93; discharge rate, 9.55; death rate, 4.77. All these rates compare favorably with the average rates of the Army. Fort Keogh was the only post in this department which had high rates: Admissions, 1,615.65; nonefficiency, 59.67. Rheumatism and myalgia and injuries caused the high rates, notwithstanding lower figures than the average for malarial and venereal diseases. The best record was given by Fort Yellowstone: Admissions, 280.30; nonefficiency, 6.68.

DEPARTMENT OF THE PLATTE.

Average strength, 2,612 men. Admission rate, 1,294.41; nonefficiency, 36.99; discharge rate, 4.59; death rate, 7.27. Forts Crook and Washakie had the average rate of admission; at the former there was a slight excess of nonefficiency, due wholly to gonorrhea and syphilis, while at the latter the nonefficiency was below the average. Fort Meade had the largest admission rate of any post in this department, 1,669.47, although its constant sickness was but little above the average; its large admission rate was the result of an increased prevalence of tonsillitis, bronchitis, rheumatism, and injuries. Fort D. A. Russell followed with an admission rate of 1,547.83 and a nonefficiency of 42.79, the result of increased prevalence of alcoholism, neuralgia, coryza, tonsillitis, and injuries. Fort Robinson had 1,497.53 as an

admission rate and 47.27 expressing its nonefficiency, due to excess of venereal diseases, tonsillitis, bronchitis, and rheumatism. Malarial affections were infrequent at the two last-named posts. Fort Niobrara had the best record: Admissions, 865.50; nonefficiency, 26.96.

DEPARTMENT OF TEXAS.

Average strength, 1,762 men. Admission rate, 1,522.14; nonefficiency, 39.65; discharge rate, 7.38; death rate, 6.24. Two posts in this department had more than two entries per man on the sick report during the year. At Fort McIntosh the admission rate was 2,312.50, with a nonefficiency of 52.14, and at Fort Clark these rates were, respectively, 2,174.26 and 49.58. At the former post there was an increased prevalence of diarrheal diseases, boils and abscesses, and injuries, and the rates for venereal diseases were excessive. At the latter the high rates were caused by diarrheal diseases, bronchitis, rheumatism, injuries, and venereal affections. The rates at Camp Eagle Pass and Fort Brown were also high: Admissions, 1,890.62 and 1,741.07, respectively, and nonefficiency 54.58 and 63.70. Venereal, malarial, and diarrheal affections and injuries occasioned the large rates at the one post and malarial and venereal diseases, boils and abscesses, and injuries at the other. Fort Sam Houston had the admission rate somewhat larger and the nonefficiency somewhat smaller than the average rates of the Army. The best record in this department was given by Fort Bliss: Admission rate, 886.22; nonefficiency, 28.55.

DEPARTMENT OF THE COLORADO.

Average strength, 3,087 men. Admission rate, 1,274.05; nonefficiency, 35.66; discharge rate, 13.93; death rate, 3.56. Forts Huachuca and Douglas had the highest rates: Admissions, 1,715.42 and 1,720.84, respectively, with 50.37 and 42.70 representing their nonefficiency. At Fort Huachuca tonsillitis, bronchitis, rheumatism and myalgia, injuries, and venereal diseases constituted the excess, and at Fort Douglas bronchitis, venereal diseases, tonsillitis, colic and constipation, rheumatism, and myalgia. The rates at Fort Logan also were considerably higher than the average, notwithstanding low figures for malarial and diarrheal diseases. They were due to vaccinia, venereal diseases, tonsillitis, colic and constipation, rheumatism and myalgia, and injuries. Whipple Barracks had a low admission rate, 975.16, but a high nonefficiency, due to some prolonged cases of consumption, typhoid fever, and heart disease. Forts Apache, Bayard, and Grant had good records, the admission rates being, respectively, 842.25, 905.82, and 1,025.24, and the nonefficiency 24.33, 28.31, and 25.23.

DEPARTMENT OF CALIFORNIA.

Average strength, 1,588 men. Admission rate, 813.60; nonefficiency, 26.33; discharge rate, 6.30; death rate, 3.15. The small post of San Diego Barracks was the only post in the department having rates in excess of the average of the Army: Admissions, 1,196.97; nonefficiency, 40.60, the excess of nonefficiency being due to consumption and injuries. The Presidio of San Francisco, notwithstanding its large number of men and its proximity to the city, had an admission rate of only 887.25 and a nonefficiency of 26.10. Its rates for venereal disease and alcoholism were below the average; the only disease that prevailed in excess of the army average was conjunctivitis. Alcatraz Island had the best record, with an admission rate of 711.11 and a

nonefficiency of 24.66, for although Angel Island and Fort Mason had lower admission rates, their rates of nonefficiency were, respectively, 32.72 and 33.66.

DEPARTMENT OF THE COLUMBIA.

Average strength, 1,452 men. Admission rate, 784.44; nonefficiency, 25.65; discharge rate, 10.33; death rate, 6.20. None of the posts in this department had rates in excess of the average except in the case of deaths and discharges. The largest post, Vancouver Barracks, with a strength of 560 men, had only 801.79 admissions per thousand of strength and a nonefficiency of 22.90. The highest admission rate in the department was recorded at Fort Walla Walla, 916.67; the lowest 608.11, at Fort Canby. The highest and lowest rates of constant sickness were also recorded at these posts: Fort Walla Walla, 44.10; Fort Canby, 14.96.

HEALTH OF INDIVIDUAL POSTS.

Three posts had two or more entries on the sick report per man of their average strength. The rate of admission at Fort McIntosh, Tex., was 2,312.50; at Fort Clark, Tex., 2,174.26, and at Fort Barrancas, Fla., 2,000 per thousand of strength. The diseases which by their increased prevalence occasioned these high rates have already been mentioned in discussing the health of the departments. Fort Myer, Va., and Washington Barracks, D. C., which for several years past have recorded the highest admission rates, dropped during the past year to the sixth and eighth places on the list of posts having the highest rates of admission.

The highest rate of constant sickness, 77.34 per thousand of strength, was given by Fort Barrancas, Fla. Fort Brown, Tex., takes second place on this list, with a rate of 63.70. Nine posts recorded rates of from 50 to 60 per thousand in the order of decreasing rates, as follows: Fort Keogh, Mont.; Camp Eagle Pass, Tex.; Whipple Barracks, Ariz.; Fort Thomas, Ky.; Fort McIntosh, Tex.; Fort Adams, R. I.; Fort Myer, Va.; Jackson Barracks, New Orleans, La., and Fort Huachuca, Ariz.

Fort Yellowstone, Wyo., had the lowest admission rate, 280.30, but this was probably due to accidental or exceptional conditions. Three posts had less than 600 taken sick per thousand of strength—Fort Mason, Cal.; Fort Porter, N. Y.; and Sandy Hook Proving Ground, N. J.—and two had less than 700—Fort Canby, Wash., and Angel Island, Cal.

Sandy Hook had the lowest rate of constantly noneffective, 5.52 per thousand of strength, but was closely followed by Fort Yellowstone, Wyo., 6.68. Fort Canby, Wash., Fort Porter, N. Y., and Fort Spokane, Wash., had less than 20 men constantly sick per thousand of strength. Of the large posts, Vancouver Barracks, Wash., had the best record, an admission rate of 801.79 and a nonefficiency of 22.90.

PREVALENCE OF SPECIAL DISEASES.

SCARLET FEVER.

Six cases of this disease occurred among enlisted men of the Army during the calendar year 1897—3 at Fort Adams, R. I., and 1 each at Fort Leavenworth, Kans., Fort Niobrara, Nebr., and Plattsburg Barracks, N. Y. One case occurred in August, in the person of a

cadet at the Military Academy, West Point, N. Y., the infection having been derived from the neighboring village of Highland Falls. Children at the post were prohibited from attending school in the village. Another case of the disease occurred in March, 1898, in the family of a civilian employee at the post. Three cases among the children of two families occurred at Fort Wayne, Mich., the disease having been contracted apparently in the Belle Fontaine Public School of Detroit, Mich. Seven cases occurred at Fort Douglas, Utah, 4 in one family, all from infection introduced from outside the post; 3 cases in each of two families at Fort DuChesne, Utah, and 1 case in a family of four children at Fort Yates. Strict isolation and disinfection suppressed the disease in all these instances.

MEASLES.

This disease was reported during the calendar year as affecting the troops at 32 military posts. Fort Monroe, Va., had the largest number of cases, 52; Vancouver Barracks, Wash., had 25; Fort Leavenworth, Kans., 21, and Fort Keogh, Mont., 14. In all, 227 cases were reported. At 9 posts the disease was not permitted to spread from the man first affected. The prevalence of measles at Fort Monroe was prolonged into the present calendar year, and from this post the disease was propagated by transfer of troops to Sheridans Point, Va.; Fort Washington, Md.; Fort Caswell, N. C., and Camp Graham, Tybee Island, Ga. Correspondingly on the Pacific coast the prevalence of the infection at Vancouver Barracks gave origin to cases at Fort Canby, Wash. The existence of the disease in many parts of the country and in certain army posts in the early months of the present year led to the invasion of some of our war camps and garrisons by this infection. Special reports from Camp Black, Long Island; Camp Alger, Va.; Camp Thomas, Ga.; Camp Northen, Griffen, Ga.; Columbia, S. C.; Key West Barracks, Fla., and Camp Merritt, Cal., indicated the presence of the infection, and the active measures taken for its suppression.

The epidemic at Vancouver Barracks was thus reported by Maj. John Van R. Hoff, surgeon, United States Army:

November, 1897.—The threatened epidemic of measles, which was announced by the appearance of 3 cases of the disease early this month in A Company, Fourteenth Infantry, has thus far materialized to the extent of 6 cases in A, 1 in B, 1 in D, 2 in E, and 1 in H, these organizations having had thus far all the cases which have fallen under observation. Considering the fact that the infection has shown a decided tendency to spread within the organization where it first appeared, it is reasonable to believe that unless the utmost precaution is taken the disease will be scattered broadcast in the command. Not only should the men who are infected be quarantined, but their bunks, bedding, clothing, in fact all their property should be at once removed from the squad rooms, thoroughly aired, and all but the bunk, if the latter be required, locked up away from possible contact with the men of the company or their property. The bunks and bottoms should be aired, washed with soap and water, and then with sublimate solution. The place in the dormitory where the bunk stood and where the clothing hung should be thoroughly scrubbed with sublimate solution, and after being aired for a day or so the bunk may be returned to its proper place. The men of all the organizations should be closely watched by their officers, and carefully inspected every day, particularly with a view to the detection of this special infection. All suspected cases should at once be separated from the other men. The foregoing rules are so simple and so obvious that I presume they have already been carried out. The actual sick are quarantined in two tents of the field hospital, which have been made comfortable with floors and a box stove. As epidemics of this character usually culminate in December, it will probably be

necessary to extend the quarantine accommodations by at least two more hospital tents. The cases thus far have proved amenable to treatment.

December, 1897.—As anticipated in my last report, the epidemic of measles has continued, 13 new cases having reported for treatment from the various organizations, as follows: B company, Fourteenth Infantry, 3 cases; D, 2 cases; E, 1 case; F, 2; G, 2; H, 1, and Troop E, Fourth Cavalry, 2 cases. From this it will be seen that the disease is apparently stamped out in A, Fourteenth Infantry, where it first appeared, and while it is or has been present in eight of the nine organizations here (C company alone having escaped) it has not spread widely in any company. This is believed to be due to careful inspection, resulting in the immediate isolation of suspicious cases. Among the civilians attached the epidemic appeared during the month and has rapidly extended. This is not surprising when it is known that the neighboring town of Vancouver is reported to be filled with cases of this disease, and I am told that no effort is made to quarantine or in any way control the epidemic. Children broken out with measles are permitted to appear at school, while the various assemblages of people frequent about the holidays are freely attended by persons in all stages of the disease. Since nothing but a picket fence separates the post from the town, it is impossible to exclude so contagious a disease from that part of the reservation pertaining to the post, but when it comes among us we can, as we have done, isolate it, an example which may perhaps appeal to the more intelligent of our neighbors. The two tent wards have enabled us to most comfortably care for the infected patients, and have left the hospital free and uninfected to meet the current demands made upon it. All cases of measles up to the present time have progressed favorably.

January, 1898.—The epidemic of measles previously referred to has continued during the month with decreasing virulency among the men. One case was admitted to hospital from Company C, Fourteenth Infantry, 1 from D, 7 from F, 1 from G, and 2 from H. Every suspicious case was put in the observation tent, and if measles developed was at once transferred to the contagious ward. In comparatively few instances was the eruption manifest at the time of admission. The cases have all thus far progressed favorably. Five remain under treatment. Among the civilians attached the disease has simply run riot, until now it has culminated, there being little material left to attack. Nor is this an unexpected result. The neighboring town was literally overrun with the disease, and no precaution was taken to control it until it had passed beyond control.

February, 1898.—The epidemic of measles heretofore noted ceased during the month; the last case, which occurred in C Company, Fourteenth Infantry, having been returned to duty on the 16th. During this epidemic, which declared itself November 6, 1897, 82 cases (men, 41; civilians attached, 41) were treated. The strictest isolation was enforced, and all patients recovered. The tent wards used during this epidemic, as heretofore stated, proved a most satisfactory shelter for the sick, and wholly relieved the hospital building of a stress which would have materially interfered with its usefulness for any other purpose than the treatment of infectious diseases. As it was, the ordinary work of the hospital went on without the slightest change or inconvenience.

SMALLPOX.

Only one case of this disease occurred among the troops during the calendar year. It was reported from Madison Barracks, N. Y. In March, April, and May, 1898, reports of the occurrence of the disease among negro laborers at Forts Barrancas and Pickens, Fla., and of its prevalence in Columbia, S. C., led to the careful vaccination of volunteer troops at the time of their muster into the service of the United States, and no doubt prevented the anxiety and alarm that would have been caused by the occurrence of sporadic cases in the large national camps of the war period.

DIPHTHERIA.

Only 11 cases of diphtheria were reported among enlisted men of the Army during the calendar year. These were scattered at 9 different posts. Since then 2 cases were reported from Fort Yates, N. Dak., 1 in February and 1 in March, 1898; both recovered under the use of antitoxin. The only post at which the disease prevailed in an epidemic form was Vancouver Barracks, Wash. Only 1 enlisted man

was affected, but over 20 children and civilian attachés of the command suffered from the disease, which appears to have been propagated from a convent school and orphanage in the city of Vancouver. Concerning this epidemic Lieut. Franklin M. Kemp, assistant surgeon, United States Army, reported to the mayor of the city, August 11, 1897, as follows:

SIR: I have the honor to submit the following report as a member of the committee of physicians organized by you to inquire into the present epidemic of diphtheria in the city of Vancouver, the supposed focus of which is located in the Convent of the Sisters of Providence, and the investigation of which was confined to that institution. Pursuant to instructions we assembled at the said convent on the 6th instant, with a view to ascertaining the sanitary conditions appertaining thereto and collecting any other data that might throw light on the subject under consideration. The sanitary conditions we found excellent. The buildings throughout were scrupulously clean, the sewerage and drainage without defect, and the rooms and dormitories roomy and well ventilated. Through the courtesy of the sister superior we were furnished with such information regarding the institution as related to the present epidemic. One end of the building contains a boarding school, the other an orphan asylum, while the center is occupied by the sisters belonging to the convent. Up to date no case of diphtheria has appeared among the sisters or the attendants at the school. The orphan asylum contains about 65 inmates, ranging in age from 3 to 18 years, and up to May 17, 1897, no contagious disease of a serious nature had occurred among them for a number of years. On the latter date one of the children, Ellen Billup by name, aged 3 years, who had been an inmate for about two weeks, was taken ill and immediately transferred to the Sisters' Hospital, where she died in three days of what was diagnosed by the aid of bacteriological examination as diphtheria. Since that date 30 cases of "sore throat" have occurred in the orphanage, some of which were diagnosed as diphtheria, some of which were not. The following preventive measures were taken against the spread of the disease: All cases of illness among the children were removed as soon as attacked to an improvised ward at the east end of the building, where they were placed under close observation. From here all those that could by the naked eye be diagnosed as diphtheria were, as soon as this diagnosis was established, removed to an isolation ward in a separate building, where during their stay the most excellent preventive measures were faithfully carried out by those in charge. It seems, however, that the length of their detention in this ward was determined by the severity of the symptoms in each individual case, varying from a few days in those that were mildly attacked to two weeks or more in those that presented signs of a graver form of infection.

I have no criticism to offer as to the means employed by the physicians or attendants in charge, as they undoubtedly made use of all the facilities they possessed to stamp out the disease. The ways and means, however, were lacking, and the only reasonable explanation of the enormous ratio of 30 cases out of 60 inmates lies in the fact of the inability of the physicians without these facilities to cope with the situation scientifically—firstly, in the diagnosis of cases in the observation ward, and, secondly, in the proper quarantine of these patients in the ward to which they were subsequently removed. I therefore beg to respectfully make the following remarks upon these two apparent breaks in the otherwise excellent chain of preventive measures against the spread of the epidemic:

Dealing first with the subject of diagnosis in the observation ward, I wish to say: (a) Diphtheria is caused by a specific and well-recognized germ, and can depend on no other condition than the presence of this germ in the person attacked. (b) It is possible, and in all epidemics a rule, for some patients to present no other symptom than those of an ordinary attack of sore throat; but even in these mild cases of diphtheria the germ is there, and its presence, if proper measures be employed, can invariably be demonstrated. (c) The mildness of the above-mentioned attacks depends not necessarily on any attenuation in virulence of these organisms, but presumably upon a greater natural resistance of the patient to their inroads, and it is possible for these patients to be as capable of transmitting as severe a type of the disease as those presenting all of its grosser symptoms. (d) No case of sore throat can be distinguished from diphtheria until the presence or absence of this germ be demonstrated. It was therefore impossible without the aid of the microscope to determine which cases were and which were not true diphtheria, while it is perfectly possible, and even probable, that many cases went back among the inmates to serve as foci for further infection.

In regard to the subject of quarantine, the following facts will be of interest: According to experiments made in the case of diphtheria convalescents, it has

been found that the specific germ may be found to exist, as shown by the cultivation of scrapings from the throat, in a state of vitality for several weeks after the disappearance of all local indications of the disease; and, should these same germs fall upon suitable soil, they are as capable, even at this stage, of transmitting as severe a type of the affection as could be caught from the most virulent form of diphtheria. The need for stringency in preventive measures against the spread of the disease is therefore of far greater importance during convalescence, as this is precisely the period when there is the greatest tendency to relax them. Neither the severity nor the duration of the disease should be taken as a criterion in determining the length of time a patient should be quarantined after an attack, as it is now a well-known fact that the bacillus of diphtheria may lodge in the throats of persons apparently not as susceptible to the disease as others, resulting in a condition comparatively benign in the person thus subjected to it, but none the less dangerous to those with whom this person comes in contact. Indeed, such a case may present only the symptoms of an ordinary attack of "sore throat," apparently recovering in a few days, and yet being as dangerous to the community as one of the most severe types of diphtheria and as capable of transmitting it for as long a period into convalescence. It is therefore, in my opinion, a grave mistake to allow such apparently mild cases to have, as is often the case, in from two to five days, unrestricted intercourse with their fellows. Bacteriological examination, then, is an absolute necessity where scientific accuracy and certainty are desired, either in establishing the diagnosis or in determining the period at which the quarantine in any individual case can be raised. It is a necessity in diagnosis, because without it it is impossible in certain cases to differentiate between diphtheria and the mildest affections of the throat. The diagnosis unmade, it is impossible that all cases can be isolated; and this measure neglected, they are a source of constant menace to the community and render valueless all measures taken to prevent the spread of the disease in it. It is a necessity in determining the period at which the quarantine may be raised, because, as I have heretofore stated, the presence or absence of the germ from the throat is the only accurate knowledge we possess as to whether or not the patient is capable of transmitting the disease; but, though it is the only one, it is proof, if the germs be not found, that the throat of the patient has ceased to be an infectious focus.

Where microscopical examination is for one reason or another impracticable, it may be stated that under no circumstances should a child affected with diphtheria, however mild, be allowed to mingle with the community, school, or institution of which it is a member, until two weeks at least have elapsed since the last indication of throat mischief was visible to the naked eye. Where bacteriological investigation is possible, the diagnosis in all suspected cases should be substantiated by it; and, commencing with the fourteenth day after the disappearance of local symptoms, frequent observation should be made of scrapings from the patient's throat, until the entire absence of the germ is definitely established. Then, and then only, can the quarantine on such cases be safely raised. I understand that neither the health authorities of the city of Vancouver nor the physicians thereof are supplied with the facilities for carrying out this policy. I would therefore respectfully suggest that, as the only practicable means of combating the spread of this disease and of preventing future epidemics, that a bacteriological laboratory be established, to be placed in charge of a competent person or at the disposal of the local physicians, who could then treat with scientific accuracy problems that are at present, at the best, attended with much doubt and danger. Such an institution would cost but little to establish and less to maintain, while its value to the citizens of the community would be incalculable.

TONSILLITIS.

The cases of tonsillitis reported during the year numbered 1,056, giving a rate of 41.55 cases per thousand of strength, as compared with 40.73 in the preceding year. Fort Meade, S. Dak., had 95 cases; Fort Logan, Colo., 60; Fort Huachuca, Ariz., 57; Fort Thomas, Ky., 49; Fort D. A. Russell, Wyo., 46, and Fort Douglas, Utah, 41.

CEREBROSPINAL MENINGITIS.

No case was reported during the calendar year either among soldiers or citizens attached to or in the neighborhood of military posts; but on April 20, 1898, Capt. Thomas U. Raymond, assistant surgeon, United States Army, reported from Fort Canby, Wash., that two

cases fulminant in character had occurred in the town of Ilwaco, Wash., one terminating fatally in twenty-four, the other in eighteen, hours. A third case, also fatal, occurred a few days later at a settlement 10 miles distant from Ilwaco. No other case was reported.

DENGUE.

In his sanitary report for September, 1897, Maj. A. A. De Loffre, surgeon, United States Army, made note of the prevalence of dengue in San Antonio, Tex., and at his post, Fort Sam Houston, Tex. The disease appeared at the post August 26, 3 cases occurring during the remaining days of the month. In September, 141 cases occurred among the troops, their average strength being 522, and over 100 cases were cared for among the families of soldiers and attachés of the camp. At Fort McIntosh, Tex., also, the garrison suffered in like manner during the same month.

YELLOW FEVER.

On September 7, 1897, Capt. W. C. Gorgas, assistant surgeon, United States Army, reported from Fort Barrancas, Fla., the probable presence of yellow fever at Ocean Springs, Miss., stating that the local authorities were taking active steps for keeping the city of Pensacola in good condition, and next day he telegraphed confirmation of the existence of yellow fever at Ocean Springs. On September 12 Capt. R. S. Woodson, assistant surgeon, United States Army, announced the acknowledgment by the board of health of the presence of 6 cases of yellow fever in the city of New Orleans, La., and recommended the withdrawal of the garrison from Jackson Barracks. The troops left for Chickamauga Park on the evening of September 14, the post surgeon, one hospital steward, and one member of the hospital corps remaining with the few men who were left to take charge of the public property at the barracks. Two cases, one fatal, occurred later in the season among these men, and 2 in the family of the hospital steward. On September 15 Col. Charles H. Alden, Acting Surgeon-General, recommended that on the appearance of yellow fever in the vicinity of Fort Barrancas the troops at that station should be withdrawn to Fort McPherson or Chickamauga Park, Ga. On the same day the surgeon at Fort Barrancas reported the presence of yellow fever at Mobile, Ala., and two days later the occurrence of 2 cases in the vicinity of Fort Morgan, Ala. On September 20 the Adjutant-General directed the commanding general, Department of the East, to have the post commander of Fort Barrancas instructed to cooperate with the authorities of the Pensacola Navy-Yard in doing everything possible to guard against the approach of yellow fever, and, if thought advisable, to remove the garrison to Fort McPherson, Ga. The commanding officer made all arrangements for leaving the post on September 21, but suspended them on the representation of the post surgeon that the gravity of the situation was not as yet such as to call for a movement of this kind. He said:

Florida and Pensacola have a good system of quarantine, and after careful investigation I have come to the conclusion that there is only a remote possibility of Pensacola having the fever, and still more remote of our having it here. I am in daily and confidential communication with the State health officers, who are at present located in Pensacola, and believe that I get the most reliable information obtainable.

But even if we do become infected—the very remotest possibility—we could get aboard the cars, go to Chickamauga Park under the supervision of the Marine-Hospital Service, there go into camp of detention for ten days, and then be free

to join the command there. I can see no reason for going at present. If the fever reaches Pensacola or gets amongst us we could do exactly what you would have to do in going to-morrow, with the exception that we would have to isolate ourselves from the rest of the command for the period of ten days. I have seen the State health officer this morning, and got my information from him. He has had twenty years' experience with State and national quarantine, and is thoroughly posted as to laws and customs.

Nevertheless, on November 8, when the disease was on the wane and the removal of quarantine restrictions was under consideration, a case was discovered in Pensacola which, after death on the 14th, was recognized as one of undoubted yellow fever; and on the 12th one of the soldiers of the garrison became affected. He died on the 20th, but in the meantime three other men became sick. The command was moved into camp on the 21st, about 2 miles away from the barrack buildings. One case occurred on the 23d, but after that date there was no further development of the disease. Of the five cases which occurred two were fatal.

According to Dr. Gorgas:

Depopulation of the affected section, as has been so often proved before, was at once and entirely successful. Strict isolation of the hospital and the sick, and a good system of separation of the camp from the post was adopted. Personally, I am only in favor of these measures to a limited extent, in a garrison, against yellow fever. Depopulation is the all-important step. The fear of yellow fever is so great through all this country (much greater than of any of the other epidemic diseases), that I think keeping up of the morale of the people is more important than the slight service intra-garrison quarantines do. It can not fail to have a depressing effect upon all concerned to see the sick and their attendants avoided and looked upon with such dread, and the dead carted away at night and buried without ceremony. The risk is so small that I would have less of this grewsome business. Experience has taught that if you depopulate you can be pretty liberal in your communication with your camp and run little risk of infecting it.

TYPHOID FEVER.

One hundred and fifty-nine cases of typhoid fever were reported during the year, only 9 of which were fatal. Fort Custer, Mont., had 26 cases; Fort Bliss, Tex., 14; Fort Sill, Okla., 9; 14 cases occurred among troops in the field, and the remaining cases were scattered among 42 different military stations. Samples of blood from these cases were forwarded by medical officers to this office for a determination of the action of the serum on pure cultures of typhoid bacilli as an aid in diagnosis, the work of the previous year, as summarized on pages 68-73 of my last annual report, having established a feeling of confidence in the Widal test as an evidence of the presence of typhoid infection.

PNEUMONIA.

Eighty-one cases of pneumonia were reported during the year, resulting in 6 deaths and 2 discharges. The largest number at any one post was 9 at Fort Douglas, Utah; 8 at Fort Monroe, Va.; and 6 at Fort Meade, S. Dak. The remaining 58 cases were reported from 33 different posts.

MALARIAL DISEASES.

The rate of admission for malarial diseases was 78.88 per thousand of strength, as compared with 83.08 in the previous year, and 92.82, the average annual rate of the previous decade. The rate for the white troops was 85.79, and for the colored troops only 4.62. The

latter rate is unusually low. In 1896 it was 16.63, but the annual rate for the previous ten years, 64.50, was only slightly lower than the rate of the white troops. Washington Barracks, D. C., and Fort Myer, Va., continue to rank as the posts having the largest prevalence of malarial fevers. The former had 576.27, the latter 537.37 admissions per thousand of strength. Fort Logan H. Roots took third place on the list of malarial prevalence, with a rate of 485.07. Fort Barrancas, Fla., had the largest rate of constant sickness from these fevers, 11.72 men constantly sick, although standing fourth on the list of prevalence. The constant malarial sickness at Fort Myer was 9.25, at Washington Barracks 7.34, and at Fort Logan H. Roots 5.70, as compared with 1.63, the average rate of the Army.

RHEUMATIC AFFECTIONS.

The admission rate for these affections was 65.12 and the constant sickness 2.63, as compared with 59.68 and 2.50 during the previous year and 76.94 and 3.71 during the years of the previous decade. The colored men suffered more than the white troops, their rates for the year being 100.74 and 3.46, as compared with 61.80 and 2.55 among the white soldiers. The post having the largest admission rate, 226.67, was Rock Island Arsenal, Ill., with a constant sickness of 6.54. The post having the largest nonefficiency, 9.30, was Fort Keogh, Mont., which stood second on the list of prevalence with 183.67 admissions per thousand of strength. Other posts having relatively high rates were Fort Douglas, Utah; Fort D. A. Russell, Wyo.; Fort Robinson, Nebr.; Fort Wingate, N. Mex.; Fort Clark, Tex., and Jackson Barracks, La.

DIARRHEAL DISEASES.

The admission rate for the year was 73.77 per thousand of strength, as against 80.02 in the previous year and 113.65, the average of the years of the preceding decade. The rate for the colored troops was somewhat lower than the average of the Army. The highest admission rates were reported from Fort Clark, Tex., Fort Huachuca, Ariz., and Fort Preble, Me., 297.59, 274.58, and 200, respectively. The highest rate of constant sickness, 3.17, was given by the last named post, Fort Huachuca being second on the list, with 2.93, and St. Francis Barracks, Fla., third, with 2.51. The average duration of acute diarrheal cases was 2.94 days. The total number of cases of dysentery treated was 52, with an average duration of seventeen days; no case fatal.

Two instances of wholesale poisoning, apparently by carelessness in the cleaning of kitchen utensils, have been reported to this office. One occurred at St. Francis Barracks, Fla., September 19, 1897. All the members of Battery C, First Artillery, partook of ice cream for supper at 5.30 p. m. About 10 p. m. some of the men became suddenly and violently ill with nausea, vomiting, cramps, and purging, attended with a slight rise in temperature and extreme prostration. Before morning over 30 members of the mess, including some soldiers belonging to the band and some civilian attachés who had partaken of the ice cream, became similarly affected. Brisk purgatives were given as soon as each case came under observation. The alimentary symptoms subsided after a few hours and were succeeded by a marked rise in temperature, varying from 100° to 104° F., severe headache and rapid pulse, which in the severe cases became weak and irregular. These acute symptoms subsided at the end of forty-eight hours. The

only treatment given after the purge was phenacetin .650, with in some cases 15 c. c. of brandy. The condition of some of the cases was such as to cause grave apprehension for a time. The ice cream was prepared by the battery cooks and the harmful results were attributed by Capt. Frank J. Ives, who reported them, to an imperfect cleansing of the freezer after its previous use. Burnett's extract of vanilla, obtained from the Subsistence Department, was used in the flavoring of the cream.

The other instance, reported from Fort Walla Walla, Wash., by Acting Asst. Surg. J. E. Bingham, occurred July 28, 1898. Breakfast was served as usual about 6 a. m. The first man affected was taken sick within twenty minutes after eating, and shortly afterwards 42 men belonging to Troop A, Fourth Cavalry, became affected with choleraic symptoms. The medical officer considered the symptoms due to the hash, of which all had partaken.

VENEREAL DISEASES.

The admissions for venereal diseases during the year were equivalent to 84.59 cases in every thousand of the strength present, as compared with 78.08 in 1896 and with 76.32, the average of the preceding decade. The rate of constant sickness, 5.65 per thousand men, also was slightly in excess of the usual rate. The annual rate for 1896 and the average annual rate for the ten years preceding were identical—5.26 per thousand of strength. The rates for the colored troops, 114.60 admissions, with 6.88 of nonefficiency, were higher than the average rates of the Army as stated above, in this differing very considerably from their rates of the previous year—56.53 admissions, with 3.18 of nonefficiency. The army admission rate for syphilis was 12.04, with, 1.20 constantly sick; for gonorrhea 52.09, with 3.15 constantly sick; for chancre and other nonspecific venereal cases 20.46, with 1.30 constantly sick. Cases of syphilis had an average duration of 36.46 days under treatment; gonorrhea 22.09 days, and other venereal cases 22.82 days. Four posts had their admission rates over 200 per thousand of strength. These were Camp Douglas, Utah, Fort Logan H. Roots, Ark., Jackson Barracks, La., and Fort McIntosh, Tex. The nonefficiency depended on the relative proportion of syphilitic cases. At Fort Brown, Tex., where the nonefficiency was highest—19.81 per thousand of strength—each case was under treatment an average of 42.64 days. Fort Douglas, with the relatively largest number of admissions, had only 11.98 constantly sick, each case having been under treatment an average of 32.62 days.

ALCOHOLISM.

The admission rate caused by alcoholism during the year 1897 was 27.86, an improvement over the rate (29.06) of the previous year, and notably so over 38.69, the average annual rate of the previous ten years. Two men died during the year from the direct effects of alcoholic excesses, as compared with 7 fatalities of the kind in 1896. As heretofore, the rate among the colored troops was much lower than among the white soldiers—4.62 admissions, compared with 30.02. Fort Warren, Mass., this year, as last year, headed the list of posts having high rates, but its rate this year was only 105.16, as compared with 152.67 in 1896. Fort Sherman, Idaho, had a rate of 100. All the other posts had lower rates, and some large posts, such as Fort Robinson, Nebr., with an average strength of 404 men, had no entry on sick report for intoxication during the year.

INJURIES.

The admission rate for injuries was 290.08 per thousand of strength, with 9.12 of constant disability. This is a slight increase over the rates of 1896, 279.75, with 8.73 of nonefficiency, and over the average annual rate of the previous decade, 252.67, with 8.64 of nonefficiency. Accidents in the gymnasium and in athletic contests are believed to have been the cause of this increase in the relative number of admissions. Contusions and sprains caused 151.40 of the 290.08 admissions for injury; wounds not gunshot, 49.69, and gunshot wounds only 2.44.

Fifty-four deaths and 55 discharges for disability were occasioned by injury during the year. Nineteen of the deaths were occasioned by gunshot wounds, 17 by drowning, 4 each by crushing and fractures, 3 by freezing, 2 by insolation, and 4 by other injuries. Inguinal hernia was the cause of 17 of the discharges; contusions, sprains, and muscular strains caused 13; gunshot wounds, 6; fractures, 5; frost-bites, 2, and other injuries, 12.

Ten cases of suicide were reported, as compared with 19 during the previous year. The largest number at any one post was 2—at Plattsburg Barracks, N. Y. Two occurred in the month of February and 1 in each of the following months: March, April, May, July, August, October, and December. Seven of the deaths resulted from wounds, 1 from leaping from a window, and 4 from morphin poisoning. In 4 cases the cause was reported as unknown, in 3 despondency from drink, 1 delirium, 1 to escape punishment for forgery, and 1 despondency on account of the suicide of a friend.

Seven of the suicides were enlisted men of the infantry, 1 of the cavalry, 1 of the recruiting service, and 1 of the Subsistence Department. One was under 25 years of age; 4, 25 to 34; 2, 35 to 44 years, and 3 over 45. One had one year's service, 1 four years, 1 six years, 1 nine years, 4 twelve years, and 2 over 20 years. Seven were natives of the United States, 2 Irish, and 1 German.

CIVILIANS ATTACHED TO THE ARMY.

The civilian attachés of the Army comprise the families of officers and enlisted men, servants, employees of the various departments and their families, and all persons not in the personnel of the Army who are allowed to reside at military stations or to accompany military commands. The average number of these present during the present year was: Adult males, 2,178; adult females, 5,710; children, 5,968; total, 13,856. The deaths that occurred among them are shown in the following statement:

Disease.	Adult males.	Adult females.	Children.	Total.
Infectious	3	8	15	26
General nutrition		3	2	5
Nervous system	1	2	3	6
Digestive system	2	3	7	12
Circulatory system	2	2	1	5
Respiratory system		6	16	22
Genito-urinary system		6	1	7
Total from disease	8	30	45	83
Total from injury	2	4	9	15
Unknown		1		1
Total from all causes	10	35	54	99

MARRIAGES AND BIRTHS.

On the reports were noted 27 marriages—10 of officers, 16 of enlisted men, 1 of civilian attachés.

The births reported numbered 416—male, 199; female, 217. Sixty-eight were children of officers, 311 of enlisted men, 37 of civilians. Twelve Indian children, 4 males and 8 females, born at Fort Sill, Okla., are included in the total.

List of special reports received from medical officers from July 1, 1897, to June 30, 1898.

MEDICAL REPORTS.

Name.	Rank.	Report.
Arthur, W. H.	Captain and assistant surgeon.	General septicæmia, result of hypodermic injection of quinine hydrochlorate, death.
Bradley, A. E.	do	Chancres of tonsil.
Brechemin, L.	Major and surgeon	Chronic enteralgia.
De Loffre, A. A.	do	Abscess of liver.
Ewing, C. B.	Captain and assistant surgeon.	Chronic interstitial nephritis.
Forwood, W. H.	Colonel and assistant surgeon-general.	Pleuro-pneumonia, death, autopsy.
Girard, A. C.	Major and surgeon	Alcoholism, report of autopsy; scarlet fever at Fort Douglas; aneurism of the aorta; report of Congress of Hygiene, Madrid.
Gorgas, W. C.	Captain and assistant surgeon.	Yellow fever at Fort Barrancas.
Hartsuff, A.	Lieutenant-colonel and deputy surgeon-general.	Arterial thrombosis of brain.
Harvey, P. F.	Major and surgeon	Five cases of typhoid fever; Woodbridge treatment.
Hoff, J. Van R.	do	Diphtheria at Vancouver Barracks.
Ives, F. J.	Captain and assistant surgeon.	Tubercular meningitis, death.
Kieffer, C. F.	do	Varicoid eruption after vaccination.
Kimball, J. P.	Major and surgeon	Cerebral tumor.
Kulp, Jno. S.	Captain and assistant surgeon.	Cerebrospinal meningitis, death.
Lippincott, H.	Lieutenant-colonel and deputy surgeon-general.	X-ray apparatus.
Mans, L. M.	Major and surgeon	Milk adulteration.
McCulloch, C. C.	Captain and assistant surgeon.	Smallpox at Fort Pickens, Fla.
McVay, H. E.	do	Pseudo-membranous rhinitis.
Munson, E. L.	do	Two cases cerebrospinal fever.
O'Reilly, R. M.	Major and surgeon	Acute gastritis, death, autopsy.
Owen, W. O.	Captain and assistant surgeon.	Pulmonary tuberculosis.
Perley, H. O.	Major and surgeon	Facial paralysis; varicose veins; chronic gastritis; muscular rheumatism; interstitial nephritis; rheumatism; malingering.
Phillips, J. L.	Captain and assistant surgeon.	Aneurism of aorta.
Robinson, S. Q.	Major and surgeon	Report on water supply of Fort Reno, Okla., essay read before Officers' Lyceum; acute mania; multiple neuritis.
Wales, P. G.	Captain and assistant surgeon.	Hodgkin's disease, death.
Waters, W. E.	Lieutenant-colonel and deputy surgeon-general.	Insolation, death, autopsy.
Willcox, Chas.	Captain and assistant surgeon.	Difficult labor, postpartum hemorrhage.
Wood, M. W.	Major and surgeon	Intestinal ulcer, death, autopsy.
Woodruff, C. E.	Captain and assistant surgeon.	Typhoid fever, death.
Woodson, R. S.	do	Smallpox in Walker County, Ala.

List of special reports received from medical officers, etc.—Continued.

SURGICAL REPORTS.

Name.	Rank.	Report.
Adair, Geo. W	Major and surgeon	Hammer toe, 2 cases.
Ashford, B. K.	First lieutenant and assistant surgeon.	Hernia.
Banister, W. B.	Captain and assistant surgeon.	Operation for radical cure of hernia, 10 cases; appendicitis.
Borden, W. C.	do	Appendicitis, 5 cases; radical cure of hernia, 2 cases.
Bradley, A. E.	do	Fractured clavicle; fatal pleuritis, death and autopsy.
Brechemin, L.	Major and surgeon	Gunshot wound forearm, skiagraph accompanying.
Clarke, J. T.	Captain and assistant surgeon.	Gunshot wound abdomen, death and autopsy.
Crosby, W. D.	do	Operation for radical cure of hernia; appendicitis, 2 cases; gunshot wound of liver.
Davis, W. B.	Major and surgeon	Amputation of thigh.
De Loffre, A. A.	do	Appendicitis.
Edie, Guy L.	Captain and assistant surgeon.	Operation for radical cure of hernia.
Fauntleroy, P. C.	First lieutenant and assistant surgeon.	Carcinoma uteri, hysterectomy; fibroma uteri, hysterectomy, death; miscellaneous gynecological cases; gunshot wound right chest.
Flagg, C. E.	do	Supra-pubic lithotomy; eczema, skin grafting; intestinal end-to-end anastomosis on 8 dogs.
Forwood, W. H.	Colonel, assistant surgeon-general.	Operation for radical cure of hernia 2 cases; epithelioma of penis; appendicitis, 2 cases.
Frick, E. B.	Captain and assistant surgeon.	Strangulated umbilical hernia; operation for radical cure of hernia.
Gandy, C. M.	Captain and assistant surgeon.	Epithelioma of lip.
Girard, A. C.	Major and surgeon	Pistol-shot wound, death and autopsy; dislocation and fracture of vertebra, death, autopsy; operation for radical cure of hernia, 5 cases; appendicitis, 4 cases.
Gorgas, W. C.	Captain and assistant surgeon.	Double amputation.
Godfrey, G. C. M.	First lieutenant and assistant surgeon.	Operation for strangulated hernia.
Hall, J. D.	Major and surgeon	Gunshot wound left ankle.
Hallock, H. M.	Captain and assistant surgeon.	Operation for radical cure of hernia, 2 cases; operation for appendicitis; impacted gall stones.
Harvey, P. F.	Major and surgeon	Tuberculosis of the testicle.
Hoff, J. Van R.	do	Operation for radical cure of hernia.
Kieffer, C. F.	Captain and assistant surgeon.	Gunshot wound of head, death and autopsy, 2 cases; antiseptic technique in military surgery.
Kilbourne, H. S.	Major and surgeon	Gunshot wound, amputation of leg.
La Garde, L. A.	do	Operation for radical cure of hernia, 6 cases; acute osteomyelitis, amputation of the thigh.
Lippitt, W. F.	Captain and assistant surgeon.	Operation for radical cure of hernia, 2 cases.
Mason, C. F.	do	Compound comminuted fracture left leg; peritonsillar abscess; 5 cases of fracture.
Maus, L. M.	Major and surgeon	Operation for radical cure of hernia.
Munday, Benj.	Captain and assistant surgeon.	Appendicitis; amputation of arm.
O'Reilly, R. M.	Major and surgeon	Gunshot wound right hand.
Pilcher, J. E.	Captain and assistant surgeon.	Thermograph; laparotomy, suppurative perityphlitis, death and autopsy.
Powell, J. L.	do	Operation for radical cure of hernia.
Raymond, H. I.	do	Cholecystotomy, death.
Robinson, S. Q.	Major and surgeon	Hydrocele of the cord.
Shillock, Paul.	Captain and assistant surgeon.	Gunshot wounds head and neck.
Skinner, G. A.	First lieutenant and assistant surgeon.	Appendicitis, 2 cases.
Stone, J. H.	do	Fracture of skull, death, autopsy.
Wells, G. M.	Captain and assistant surgeon.	Two gunshot wounds.
White, R. H.	Major and surgeon	Gunshot wound, suicide, death, autopsy.
Willcox, Chas.	Captain and assistant surgeon.	Bullet wound right thigh, death, autopsy.
Wilcox, T. E.	Major and surgeon	Appendicitis.
Woodruff, C. E.	Captain and assistant surgeon.	Do.

SURGICAL OPERATIONS.

During the year 1897 the Medical Department of the Army reported 786 surgical operations, 337 of which were necessitated by injury and 449 by disease. The number, character, and results of these are shown in the following statement:

Nature of operation.	Disease or injury.	Total.	Recov- ered.	Died.	Remarks.
Removal of tumors.		38			
Enucleation	Sebaceous, 10; en- cysted, 5; lipoma, 7; fibroid, 3; fatty, 3; warty growths, 2; fleshy, 1; papil- loma, 1; epitheli- oma, 1; vascular, 1; cutaneous, 1; keloid, 1; chon- droma, 1; rhabdo- myoma, 1.	38	38		Neck, 5; hand, 4; cheek, 4; lip, 3; buttock, 2; eyelid, 2; thumb, 2; perineum, 2; loin, 1; prepuce, 1; lower jaw, 1; forearm, 1; scro- tum, 1; back, 1; fore- head, 1; ear, 1; face, 1; skull, 1; spermatic cord, 1; shoulder, 1; chin, 1; Scarpa's tri- angle, 1.
Opening of abscesses.		91			
Incision	Adenitis, 13; cellulit- is, 12; bubo, vene- real, 20; bubo, non- venereal, 11; tu- bercular, 1; ischio- rectal, 2; perirectal, 2; periosteal, 1; venereal, 3; per- itonsillar, 1; alveo- lar, 1; whitlow, 1; suppurating cyst, 1; subcutaneous, 11.	80	80		Groin, 36; neck, 5; but- tock, 6; rectum, 4; finger, 1; cheek, 1; leg, 1; thigh, 1; scalp, 1; testicle, 1; orbit, 1; chest, 1; anus, 1; pubes, 1; loin, 2; scrotum, 1; arm, 1; alveolus, 1; tonsil, 1; jaw, 1; scapula, 1; axilla, 2; palm, 2; urethra, 1; thumb, 1; perineum, 1; se- crum, 1; face, 1; chin, 1; ear, 1.
Incised and curetted.....	Adenitis, 6; bubo, venereal, 2; peri- rectal, 1; ischio- rectal, 1; cellulit- is, 1.	11	11		Groin, 8; rectum, 2; toe, 1.
Operations on the eye		26			
Enucleation		1	1		
Foreign bodies		6	6		
For pterygium		10	10		
For chalazion		3	3		
Removal of cataract		3	3		
For strabismus		1	1		
For staphyloma		1	1		Iridectomy.
For opaque membrane of capsule		1	1		
Operations on the nose		37			
For fracture of nasal bones		24	24		
For chronic rhinitis		7	7		
For hypertrophied turbinate		1	1		
For hypertrophied septum		1	1		
For exostosis, nasal bones		1	1		
For nasal polypi		2	2		
For deformed nose		1	1		
Operations on the mouth		7			
Amputation of uvula		1	1		
Removal of tonsils		4	4		
For deformed lip		1	1		
Removal of adenoid growths of pharynx		1	1		
Operations on the veins		29			
For varicocele		27	27		Excision, 21; resection of veins, 2; Bennett's operation, 1; liga- tion, 3.
For varicose veins of leg		2	2		Excision, 1; ligation, 1.
Operations on the digest- ive organs.		150			
For fistula in ano		10	10		
For prolapse of rectum		2	2		
For rectal fistula		1	1		
For ulcer of rectum		2	2		
For fissure of anus		1	1		

Surgical operations—Continued.

Nature of operation.	Disease or injury.	Total.	Recovered.	Died.	Remarks.
Operations on the digestive organs—Continued.					
For hemorrhoids.....		53	53	.....	Incision, 25; ligature, 15; clamp and can- tery, 8; thermo-can- tery, 5.
Laparotomy	Appendicitis, 20; traumatic perito- nitis, 1; intestinal perforation, 1; peritoneal ab- scess, 1; removal of gall stones, 1; gunshot wound of liver, 1; for radi- cal cure of hernia, 56.	81	77	4	Bassini's operation, 34; Bassini's modified, 1; Halsted's, 2; not stated, 19; (a) acute appendicitis (2 deaths); traumatic peritonitis, (1 death); intestinal perforation (1 death).
Operations on the respi- ratory organs.					
Aspiration of chest.....	Acute pleurisy, 2; empyema, 1.	3	3	.....
Thoracotomy	Pneumo-pyo-thorax.	1	1	.....
Operations on the lym- phatic glands.					
Removal of glands.....	Venereal, 32; bubo, nonvenereal, 4; nonspecific ade- nitis, 7; tuber- cular, 3.	46	46	.....
Curetting.....	Venereal, 3	3	3	.....
Operations on the uri- nary organs.					
For stricture of urethra:					
Internal urethrotomy....	Gonorrhea, 5.....	5	5	.....
External urethrotomy....	Gonorrhea, 3.....	3	3	.....
Meatotomy	Gonorrhea, 1.....	1	1	.....
Dilatation	do	1	1	.....
Aspiration of bladder....	Renal calculus in membranous por- tion of urethra.	1	1	.....
Cystotomy	Chronic cystitis, 1...	1	1	.....
Suprapubic lithotomy	Vesical calculus, 1...	1	1	.....
Operations on the gener- ative organs.					
For phimosis.....	Congenital, 14; gon- orrhea, 3; chan- croid, 7.	24	24	.....
For elongated prepuce....	Congenital, 7	7	7	.....
For hydrocele		10	10	.....	Aspiration, 5; Volk- mann's operation, 4; injection of carbolic acid, 1.
For paraphimosis	Gonorrhea, 1; chan- cre, 1.	2	2	.....
Aspiration of testicle.....	Gonorrheal epidy- mytis, 1.	1	1	.....
Removal of testicle	Tubercular testi- cle, 1.	1	1	.....
Trachelorrhaphy	Lacerated cervix uteri, 9; subinvo- lution and retro- flexion of uterus, 1.	10	10	.....	Adult females, 10 (ci- villian attachés).
Perineorrhaphy	Laceration of peri- neum, 3.	3	3	.....	Adult females, 3.
Forcible dilatation of cervix uteri.	Stenosis os uteri, 3; endometritis, 2; abortion, reten- tion of mem- branes, 1.	6	6	.....	Adult females, 6.
Colorrhaphy.....	Endometritis and laceration, 1.	1	1	.....	Adult female, 1.
Abdominal hysterectomy....	Fibroid uterus, pyo- salpinx, cystic ovary, 1.	1	.....	1	Do.
Operations on the bones.....					
Removal of portions	Necrosis, 2; exosto- sis, 1.	3	3	.....	Phalanx third toe, 1; tibia, 1; tarsus, 1.
Incised and curetted	Osteitis, 1	1	1	.....	Tibia, 1.
Resection of rib	Gunshot wound of chest.	1	1	.....

Surgical operations—Continued.

Nature of operation.	Disease or injury.	Total.	Recovered.	Died.	Remarks.
Operations on the bones— Continued.					
Reduction and manipulation of fractures.	.....	146	143	3	Sternum, 1; femur, 5; humerus, 5; lower jaw, 4; malar bone, 1; clavicle, 29 (1 death from acute pleurisy); tibia and fibula, 15; tibia, 6; fibula, 28; patella and radius, 1; radius, 19; Colles's fracture, 3; wrist, 1; ribs, 16; skull, 3 (1 death); cervical spine (died) 1; ulna, 5; radius and ulna, 2; scapula, 1.
Operations on the joints.	.....	53			
Reduction of dislocations.	.....	47	46	1	Shoulder, 29; knee, 4; clavicle, 2; elbow, 7; ankle, 2; wrist, 2; cervical vertebrae (died), 1.
Disarticulation of joint.	Hammer toe, 1; ankylosis, 1.	2	2		Finger, 1; toe, 1.
Aspiration.	Synovitis, 2.	2	2		Knee, 2.
Opened and curetted.	Bursitis, 1.	1	1		Elbow, 1.
Operations on the limbs.	.....	27			
Amputation for injury:					
Fingers.	Gunshot, 2; frost-bite, 4; lacerated wound, 7; old injury, 1.	14	14		Primary, 13; secondary, 1.
Arm.	Gunshot, 1.	1	1		Primary, 1.
Forearm.	do.	1	1		Do.
Leg.	Gunshot, 1; compound comminuted fracture of tibia and fibula, 2.	3	3		Primary, 3.
Toe.	Lacerated wound, 1.	1	1		Primary, 1.
Amputation for disease:					
Thigh.	Arthritis, 1; osteomyelitis, 1.	2	2		Primary, 1; secondary, 1.
Fingers.	Necrosis, 1; whitlow, 1; osteitis, 1.	3	3		Primary, 2; secondary, 1.
Toe.	Hammer toe, 2.	2	2		Primary, 2.
Operations on the tendons and muscles.	.....	4			
Tenotomy.	Contracted tendon of toe, 1.	1	1		
Suture of tendon.	Rupture of insertion of extensor communis digitorum, fighting, 1; incised wound, 2.	3	3		
Operations on the skin, etc.	.....	42			
Ingrown nails, excision of nail.	.....	21	21		
Ingrown nails, partial excision of nail.	.....	6	6		
Skin grafting, frog skins.	Chronic eczema, 1.	1	1		
Removal of foreign bodies.	.....	11	11		
Removal of old scar.	.....	1	1		
Incision of scar.	Compressed nerve, 1.	1	1		Finger, 1.
Plastic operation.	To cover denuded surface (accident circular saw), 1.	1	1		

OPERATIONS FOR THE RADICAL CURE OF HERNIA.

The following cases, additional to those published in my last annual report, have been operated on for the radical cure of hernia. The increased business of the office, occasioned by the war with

Spain, has prevented me from following up their histories to determine the percentage of recurrences. This will be done hereafter.

Name.	Organization.	Age.	Hernia.	Date of operation.	Operator.
C. S.	Civilian	17	R. ing., 7 yrs.	July 20, 1897	Maj. J. M. Banister, surgeon, United States Army, Fort Leavenworth, Kans.
K. B.	Pvt., L. 1 Art.	26	R. ing. obl., 1 mo.	Aug. 26, 1897	
A. B.	Pvt., A. 3 Cav.	25	L. ing. obl., few mos.	Sept. 1, 1897	
Mrs. J. A. D.	Civilian	50	R. femoral, 10 yrs.	Oct. 20, 1897	
W. N. P.	Sergt., F. 20 Inf.	39	R. ing. dir., 3½ yrs.	Nov. 9, 1897	
J. F. H.	Capt., 20 Inf.	46	L. ing. obl., 20 yrs.	Dec. 5, 1897	
E. F. W.	2 Lieut., 19 Inf.	34	R. ing. obl., 3 mos.	Dec. 23, 1897	
S. R.	Civilian	26	R. ing. dir., recent.	Feb. 12, 1898	
C. A. L.	Veterinary surg.	28	R. ing. obl.	Mar. 25, 1898	
T. W. L.	Pvt., Ord.	27	L. ing., obl.	July 2, 1898	
A. L.	do.	29	R. ing., obl.	July 18, 1898	
F. C. B.	Sergt., A. 5 Mo. Vol.	27	L. ing., obl.	Aug. 29, 1898	
H. C.	Pvt., D. 8 Cav.	31	R. ing., obl.	Sept. 29, 1898	
L. S.	Sergt., K. 1 Cav.	37	R. ing., obl.	Oct. 6, 1898	
E. J. H.	Pvt., E. 2 Inf.	29	R. ing. obl., recent.	Sept. 27, 1897	Capt. W. B. Banister, assistant surgeon, United States Army, Fort Keogh, Mont.
C. A. R.	Pvt., C. 3 Inf.	26	L. ing. indir., 1 mo.	Aug. 9, 1897	Capt. W. C. Borden, assistant surgeon, United States Army, Key West, Fla.
— P.	Pvt., F. 3 Inf.	25	R. ing., 2 mos.	Jan. 27, 1898	
C. N.	Fireman, U. S. N.	30	R. ing. obl., recent.	May 23, 1898	
F. L.	do.	27	R. ing. obl., 3 weeks.	May 27, 1898	
J. S.	Corp., 11 Inf.	27	L. ing. obl., 2 mos.	June 4, 1898	
P. C.	Pvt., B. 2 Cav.	42	R. ing. obl., 1 yr.	June 5, 1898	
M. S.	Seaman, U. S. N.	24	R. ing. obl., 6 yrs.	June 9, 1898	
J. C.	Marine, U. S. N.	21	L. ing. obl., 7 weeks.	June 21, 1898	
H. W.	Machinist, U. S. N.	55	R. ing. dir., 2 yrs.	June 27, 1898	
M. L.	Civilian	42	L. ing. indir., 1 yr.	Mar. 8, 1897	Capt. W. D. Crosby, assistant surgeon, United States Army, Fort Mifflin, Pa.
G. E.	Child civilian.	5	L. ing. indir., cong.	Apr. 21, 1897	
D. P. G.	Sergt., B. 25 Inf.	25	L. ing. indir.	May 12, 1897	
F. R.	Pvt., F. 25 Inf.	26	R. ing. dir.	July 2, 1897	
E. C.	Corp., Ord.	33	L. femoral, 16 mos.	Feb. 19, 1898	
Mrs. R.	Civilian	37	Unibl. strang., 15 mos.	Dec. 30, 1897	
S. Q. B.	Pvt., F. 24 Inf.	31	L. ing., recent.	Oct. 4, 1897	
J. A.	Civilian	61	Ing. strang., 3 yrs.	Feb. 24, 1898	
W. McC.	Civilian	19	L. ing. obl.	Jan. 12, 1898	
J. M.	Pvt., Ord.	50	L. ing. obl.	Nov. 22, 1897	Maj. J. Van R. Hoff, surgeon, United States Army, Vancouver Barracks, Wash.
G. A.	Sergt., D. 2 Cav.	38	R. ing. obl.	July 11, 1897	
O. S.	Pvt., A. 6 Inf.	55	L. ing., 2 mos.	Oct. 10, 1897	
O. S.	do.	55	R. ing., 2 mos.	do.	
W. J. Y.	Discharged.	36	R. ing., 9 yrs.	Oct. 24, 1897	
F. D.	do.	34	R. ing., 5 yrs.	Oct. 28, 1897	
R. C.	Civilian	20	R. ing., 14 yrs.	Dec. 19, 1897	
W. G.	do.	11	L. ing., cong.	Jan. 9, 1898	
R. L. Z.	Discharged.	31	L. ing., 1½ yrs.	Jan. 16, 1898	
G. S.	do.	62	R. fem., 1 mo.	Jan. 23, 1898	
J. B. L.	Civilian	52	R. ing., 35 yrs.	Feb. 13, 1898	Capt. E. B. Frick, assistant surgeon, United States Army, Presidio of San Francisco, Cal.
D. McS.	Corp., H. 1 Art.	27	R. ing., 1 mo.	Feb. 27, 1898	
C. D.	Pvt., B. 6 Inf.	36	R. ing., 1 yr.	Apr. 17, 1898	
G. W. H.	Rect., D. C. Vols.	26	do.	May 14, 1898	
E. L.	do.	29	L. ing., 8 yrs.	do.	
J. M. S.	do.	34	L. ing., unknown.	May 15, 1898	
G. G. N.	do.	32	L. ing., 4 yrs.	do.	
E. A. F.	do.	25	R. ing., 10 yrs.	May 19, 1898	
W. R.	Pvt., L. 47 N. Y. Vol.	21	L. ing., 6 wks.	July 28, 1898	
L. A.	Discharged.	56	L. ing., 2 wks.	July 30, 1898	
L. A.	do.	56	R. ing., 2 wks.	do.	Maj. J. L. Powell, surgeon, United States Army, Fort Riley, Kans.
W. J. K.	Pvt., M. 4 Art.	21	R. ing., 5 wks.	Oct. 2, 1898	
S. B. V.	Pvt., Ord.	35	L. ing., 6 mos.	do.	
H. A. H.	Pvt., V. Sig. Corps.	24	L. ing., 2 mos.	Oct. 9, 1898	
T. G.	Civilian	39	R. ing., 13 yrs.	Oct. 16, 1898	
G. M.	Pvt., C. 15 Minn.	26	L. ing., 3 wks.	Oct. 19, 1898	
H. S.	Pvt., G. 15 Minn.	32	R. ing., 2 mos.	do.	
W. E. B.	Pvt., Hos. Corps.	28	R. ing., 4 mos.	Oct. 23, 1898	
C. C. J.	Corp., I. 15 Minn.	22	R. ing., 3 mos.	do.	
P. M.	Discharged.	64	L. ing., 2 mos.	Nov. 9, 1898	
W. M. C.	Pvt., F. 2 Tenn. Vol.	32	L. ing., 2 wks.	Nov. 11, 1898	Col. W. H. Forwood, assistant surgeon-general, United States Soldiers Home, Washington, D.C.
S. H. V.	Pvt., Hosp. Corps.	21	L. ing., 2 wks.	Nov. 11, 1898	

QUARTERS.

Defective ventilation of barracks has been reported from a number of posts, notably Forts Logan, Douglas, Warren, and D. A. Russell, but in several instances this condition resulted from the occlusion, through accident or design, of the existing openings for ventilation. At several of these posts an unusually high percentage of sickness from tonsillitis and respiratory catarrhs induced a careful investigation of the sanitary conditions, Maj. A. C. Girard reporting that an immediate decrease in the number of cases of tonsillitis followed the institution of proper ventilation. Capt. R. W. Johnson, assistant surgeon, United States Army, writing from Fort D. A. Russell, Wyo., in February, 1898, states that—

A few days ago three cases of tonsillitis were admitted to the hospital from Company F, Eighth Infantry. I immediately went to the barracks for the purpose of making an investigation to ascertain, if possible, the cause of the sickness. I found all the fresh-air inlets closed, in which condition they had apparently been for some time, judging from the accumulated dust in the iron registers covering them. On removing these I discovered from a foot to a foot and a half of dust, papers, and other rubbish piled up to within a few inches of the floor. There are iron gratings at each end of the building, set in the stone foundation, through which fresh air passes, but this, in place of being conducted directly by means of suitable shafts to the openings in the floor of the squad room, first circulates, as near as I could determine, beneath the floor of the entire building. Practically no fresh air gains access to this barrack, except what passes in when the doors and windows are opened. In case these ventilators under the stoves are occasionally opened there would be free entrance to the squad room of the stagnant and impure ground air which had been imprisoned under the floor for a longer or shorter period, and which would be injurious to health. The fresh-air inlet and the outlet for foul air in the new squad room were both closed, the former having a set of three lockers placed directly against it. From the amount of dirt that had accumulated behind these lockers I judged they had not been moved for a long time, so the probabilities are the fresh-air inlet has been closed for the same length of time. During the night the air in this barrack, from the entire absence of proper ventilation, must of necessity be very foul and act as a causative agent in the production of disease. In this connection I will say that I have inspected nearly all the barracks, and found the same condition of affairs existing, viz: All the fresh-air inlets closed, with but few exceptions, and in most cases filled with dirt and debris of all kinds; no fresh-air shafts, and the closure of all foul-air outlets, except those in the ridge, which would undoubtedly also be closed if it were possible. The air in one barrack room is reported by the first sergeant as always extremely foul when he enters at reveille. During the past few weeks five cases of bronchitis were admitted to sick report from Company H, the ventilation of whose squad room I found in even worse condition than any of the other barracks inspected. The impure air, which would be certain to accumulate in the absence of proper ventilation, would readily account for these cases of sickness. I recommend that suitable shafts be put in all the barracks as soon as possible, and that when they are constructed the openings leading into the squad room be kept open all the time. If the entering air be too cold, a suitable jacket around the stove would confine it and cause it to be heated sufficiently before diffusing through the room.

In an inclosure to the sanitary report of Fort Logan, Colo., for the month ending February 15, 1898, Maj. C. E. Munn, surgeon, United States Army, remarks:

My attention has been directed, since the cold season, to the defective ventilation of the barrack dormitories of this post. Since October 1, 1897, there have been admitted to sick report about 75 cases of tonsillitis and other catarrhal affections of the throat and lungs. More than 200 similar affections were treated at sick call in men who were not excused, and in a large number of persons whose names do not appear on sick reports. These diseases are believed by sanitarians to be mainly caused by breathing the impure air surrounding aggregations of men

sleeping in close rooms. I have carefully examined the condition of these rooms and find as follows: They are about 70 by 30 by 12 feet, and average 26 bunks. This would give an air space of about 950 cubic feet per man, which would seem to be ample, but they are heated by three hot-air flues opening through the floor, and being well built, with no openings near the ceiling, they practically become filled with foul air after a few hours' occupancy at night, although earnest effort has been made to secure ventilation by dropping the windows at the top, etc. There are near the floors in each room, at each end, three openings for ventilating shafts, which originate under the verandas near the ground, and are carried in the walls to above the roof. I find that a current of air is constantly flowing from the room through them, but not sufficient to affect the needed air change. I am of the opinion, however, that by supplementing these ventilators by three small shafts, say 24 by 24 inches, leading directly from the tight ceilings to louvered openings on the ridge, efficient ventilation will be obtained. I respectfully recommend that this plan be suggested to the quartermaster as being simple, least expensive, and, considering the climate, entirely practicable. It may be that the department of construction may have some better plan, but improvement of some kind is imperatively needed before another winter.

At Fort Preble, Me., the barracks are without any system of ventilation, are old, and not worth repairing. Capt. J. R. Kean, assistant surgeon, United States Army, reports of Fort Warren, Mass., that "the casemate squad rooms are dark and ill ventilated, and the basement rooms occupied by married enlisted men are still worse." He recommends that the use of casemates for living purposes at this post be discontinued, except in an emergency, and that barracks, officers' quarters, and a hospital be constructed at an early date.

The casemates at Fort Adams, R. I., were reported as damp, ill ventilated, and insufficiently lighted, and a table has been submitted by the surgeon, Maj. C. L. Heizmann, giving the proportion of the more common diseases occurring among the soldiers of the light battery living in light and airy brick barracks as compared with the remainder of the garrison in casemates. It would seem, however, as if this comparison can not be made so as to demonstrate with precision the insanitary influences exerted by the character of the quarters occupied: (1) Because the absolute number of men in each case is so small—average annual strength of the light battery during the past three and one-half years, 66; of the other batteries, 187. (2) Because other influences affecting the men are so powerful as to overshadow by their results those effected by the character of the quarters. Nevertheless, an excess of prevalence of rheumatic affections is suggestive of the known dampness of the casemates. The annual admission rate for the three and one-half years was, for the light battery, 1,365; for the others, 1,081 per thousand of strength present, and the rate of constant sickness, respectively, 46.8 and 33.6. But it is evident that the light artillerymen were more exposed to injury than the others, for their rate for such causes of disability was 413, as compared with 235 per thousand of strength. Again, the light artillerymen had 135 venereal cases, the others only 91. Excluding venereal diseases, vaccinations, alcoholism, and injuries, the number constantly sick in both commands was about the same, 17.6 in the light battery and 17.4 in others. It is observed, however, that the men in the casemates suffered more from diarrhea, an average annual rate of 104 as against 74, and from rheumatism an average annual rate of 61 as against 30. These are the striking difficulties in a comparison of the sick rates. An investigation of the statistics of the past ten years shows that the preponderance of rheumatism among the men in the casemates is constant, the average annual rates being 84, as compared with 56 in the light battery.

At Fort Hamilton, N. Y., some of the officers' quarters were built without cellars or any means of preventing the ingress of soil atmosphere or soil dampness. Consequently, the walls during damp weather are covered with moisture, and the odor in the houses is stale and musty. This condition should be remedied.

At Fort Yellowstone, Wyo., the surgeon, Capt. A. E. Bradley, found that the new guardhouse had been built with no provision for fresh-air inlets, and that a similar condition existed in the barracks then in process of construction. These mistakes were, however, promptly remedied on representation of the facts. The removal of a row of improvised shelters occupied as quarters by the families of enlisted men at Fort Canby, Wash., has materially improved the appearance and sanitary condition of that post.

At Fort Sill, Okla., the quarters now occupied by married enlisted men are reported as being in bad sanitary condition, and the commanding officer of the post recommends that some of these hovels be torn down and replaced by better buildings. It is also desirable at this post that water-closets be provided for the families of enlisted men and for the servants of officers wherever it is found possible to connect them with the water and sewer systems.

At Fort Niagara, N. Y., the condition of the quarters is reported as good, with the exception of the cellar of the post exchange, which is wet and unwholesome from surface drainage.

Capt. Paul Clendenin, assistant surgeon, United States Army, reporting from Key West Barracks for the month of August, recommends that this post be lighted by electricity, as the oil lamps now in use heat the rooms and are prone to smoke in the free draughts produced by the universally open doors and windows. In hot climates these small considerations appear to make all the difference between comfort and discomfort. At this post, too, the old sets of officers' quarters appear to be unsafe, and, by reason of their extreme age, the roof plates and some of the timbers have become decayed and, in some instances, crumpled, so that in a high wind the roofs are in danger of being blown off.

In the sanitary report of Fort Apache, Ariz., March 15, 1897, First Lieut. William E. Richards, assistant surgeon, United States Army, remarks that part of all the company barracks underneath the floor is in bad condition. These buildings are all near the ground, and the foundation being of stone, with no gratings, the only escape for air between floors and ground is upward through the living rooms. He says:

I have only had opportunity to see the ground under G Troop barracks. It was very wet, and there is no reason to suppose that any of the others differ from this.

DRAINAGE AND SEWERAGE.

Improvements have been made during the year in the drainage and in the methods of disposing of solid and liquid wastes at many of the posts. Capt. H. I. Raymond, assistant surgeon, United States Army, reported from Fort Niagara in July, 1897, that the new drainage system of the post had been tested during the month by a rainfall of over 7 inches. No detriment to the health of the men nor serious inconvenience to travel was experienced during this exceptionally heavy rainfall, whereas, before this improvement such a fall would have converted the ground in and around the post into a swamp. In July, 1897, Maj. Ezra Woodruff reported the substitution of earth closets

at Fort Keogh, Mont., for the privy pits that had been so long in use at this post. At Fort Assinniboine, Mont., galvanized-iron boxes were recommended for the earth closets as being less absorbent of liquid excreta and more easily cleaned and handled than the wooden boxes in use.

Local obstructions and local faults in sewerage systems were occasionally noted. Thus, at Fort Huachuca, Ariz., it was found necessary to lay open portions of the sewer for the removal of obstructions. At Fort Baker, Cal., the wastes from a bath and wash room discharged on the ground, and the foul water was imperfectly drained from the side of the barrack building by a surface ditch, while a leak in a kitchen drain permitted waste water to soak into the ground beneath the building. Faults of this character were promptly remedied by the action of the local authorities.

Capt. J. R. Kean, assistant surgeon, United States Army, took exception to the construction and lighting of the closets and urinals at Fort Warren, Mass., on which estimates for slate urinals were called for, and the quartermaster was directed to make requisition for outside lamps under Army Regulations 1015. Captain Kean said:

The closets and urinals for the command are in a large cellar lighted dimly by three loopholes, each 6 inches wide, at one end. Artificial light is necessary at all times, and this is imperfectly supplied, because, as I am informed, the Quartermaster's Department does not supply lamps and oil for the purpose. It is obvious that there should be a special allowance of oil and lamps for this and other like purposes for garrisons in casemates. The closets are in fair condition. The urinal is a long, zinc-covered trough of home manufacture, and is crude, filthy, and offensive. It is well recognized by sanitarians that urinals will always become nuisances unless constructed of the best materials and with the greatest skill and care. It is submitted that the construction of urinals for a permanent fort is not a job to be performed by the extra-duty men of the command out of materials which are on hand, nor is it a proper matter in which to economize. It is therefore recommended that four stalls, at least, of polished slate or marble be put in for the use of this command, the work to be done by contract or hired expert labor in the very best manner.

In February, 1898, Maj. Henry McElderry, surgeon, United States Army, reported that at Fort Leavenworth, Kans., a crematory for the disposal of garbage, etc., began operations during the month.

The disposal of the sewage at Fort Logan, Colo., continues in an unsatisfactory condition. In the warmer months of the year it was utilized by irrigation on the farm of a citizen (Mr. Plater) who desired to make use of it, but during the remainder of the year it was directed into a pool, from which a certain part of the liquid drained into the Platte River. After repeated complaints from the health authorities of the county and city, and in consequence of a personal inspection of the conditions, the department commander directed that a pit be dug in a gravel bed near the Plater farm, into which the sewage should be run during the nonirrigating season, and from which it was expected that the liquid would ultimately filter out in a relatively harmless state. Lieut. Col. A. A. Woodhull, chief surgeon, suggested that one pit would be insufficient, and that two, or preferably three, should be constructed that the gravel through which the filtration would take place might have periods of rest for oxygenation. One pit was prepared and the sewage was turned into it on January 5, 1898, but it failed to take the whole of the flow, and the excess was permitted to run as before into the pool already mentioned. This excess amounts to 10,000 gallons a day. Additional filtering pits are needed for the disposal of this sewage.

Early in the present calendar year the reoccupation of a number of old posts led to many suggestions by medical officers for repairs, improvements, and the removal of insanitary conditions at these stations. As an illustration, the following from the sanitary report of Fort Delaware, Del., for May, 1898, may be given:

The island is a low mud bank 80 acres in area, and is supposed to be drained by a network of ditches which run in every direction and which vary in width from 2 feet to 25 feet, the amount of water being regulated by two sluice gates which open into the Delaware River, and theoretically permit of flushing at high tide and draining at ebb tide. The vegetation in these ditches and on this moist soil is characteristic of swamp ground, and the peculiar swampy atmosphere is present on still days. This odor is supplemented by the stench emitted by the mud lining the banks and bottoms, and this is of great intensity on a hot day. In the same category with the ditches is the moat, which up to the last few days, could not be drained at all, owing to impaired machinery. The stench from the stagnant waters became so great that the gates were broken open and the fresh water of the tide allowed to flow in. This improved the condition greatly, but the underlying stratum of filth and mud still furnishes a nucleus for an unhealthy condition. The few warm days we have had have served to emphasize the necessity of giving attention to both moat and ditches, the odor from which is already noticeable and will continue to increase in intensity with all the disease-breeding possibilities which it suggests, until effectual drainage is secured and the filthy bottoms of both moat and ditches are thoroughly removed.

The following, from a report dated March 1, 1898, by Lieut. Franklin M. Kemp, assistant surgeon, United States Army, gives a view of the insanitary conditions at Dyea, Alaska. The command consisted of 3 officers and about 50 men of the Fourteenth Infantry. It left Dyea shortly afterwards for the Yukon via the Dalton trail:

The command went into camp at Dyea, Alaska, February 13, 1898, at which place it still remains. The men occupy Sibley tents, averaging eight men to the tent. The officers and noncommissioned staff are supplied with the new conical wall tents, one of the latter being also used as a field hospital. The tents are arranged in a single row upon a narrow ridge of an elevation of about 5 feet and the drainage as far as the habitations of the command are concerned, is excellent. Outside of this small area, however, the ground over the greater part of Dyea is without inclination, and the water from the melting snow, unable to find its way through the frozen ground beneath, collects in large puddles which contaminated by the excreta, garbage and filth of the town, remain a constant menace to the health of the community. The latrines of the detachment are situated about 100 yards from the camp, are well covered, and afford under existing conditions the best possible means for the disposal of excreta. The town of Dyea, the center of which the camp is in, is devoid of any system of sewerage compatible with health. The privy-vault system is universally used for personal wants, but all other refuse is indiscriminately thrown on whatever happens to be the most convenient spot. This, as will be seen from the character of the soil, bears a most important relationship to the water supply. The soil consists of a shallow layer of loam overlying a deeper stratum of sand. The water supply is derived from two sources, namely, the Dyea River, a small stream that receives refuse from all the habitations along its banks, and from shallow wells. These wells are, as a rule, in close relation to privies or stables, and probably yield a water as undesirable from a sanitary standpoint as that from the river itself. On account of the above conditions all of the water used for drinking purposes by this command is previously well boiled.

The clothing of the men, in view of the fact that additional wearing apparel has been issued to meet the requirements of the severe climate in this locality, is all that can be desired.

The habits of the men are good, the food of desirable quality, though necessarily lacking somewhat in variety, and the cooking is excellent.

One of the men was attacked with measles shortly after our arrival, and this disease is commencing to appear among the civilians of the outside community. An epidemic of cerebrospinal meningitis has existed for some time in Skagway, and has recently extended to this town. There have been, according to report, about 20 deaths from this disease in Skagway, and to my personal knowledge 5 deaths in Dyea. It is of an extreme degree of virulency, carrying the patient off in from twelve hours to three days.

WATER SUPPLY.

During the year 1897 the post surgeon of Fort Myer, Va., represented the quality of the Potomac River water at the intake as not good and subject to increasing sources of contamination. In January, 1898, however, a pipe line was laid to bring the water to the post from a point 1,000 feet above the old intake, thus securing a water free from the sewage of Georgetown and other local settlements.

From Fort Columbus, N. Y., Maj. James P. Kimball, surgeon, United States Army, reported, September, 1897, that the turbidity of the water from clay and decomposed vegetable matter had been remedied and a clear water supplied by the use of filters put in by the quartermaster during the month.

Analyses of water samples from Columbus Barracks, Ohio, were made in the laboratory of this office in February last. The Alum Creek supply was regarded from the chemical point of view as of doubtful purity. The presence of fecal bacteria was not demonstrated, but saprophytic bacteria were very numerous. The Scioto River supply gave even stronger grounds for suspicion of pollution. The well near Barrack No. 53 gave good results chemically and bacteriologically. All the samples were hard from the presence of bicarbonates and sulphates of the alkaline earths.

The post of Fort Custer was abandoned in November, 1897, on account of dilapidation of quarters and insanitary conditions, chief among which was the difficulty of obtaining a pure water supply. This supply was taken from the Little Big Horn River and was originally a comparatively pure surface water, so much so that a few years ago Fort Custer was reported as the post having the smallest sick rates of any in the Army. Since then, however, many sources of contamination have been established such as the refuse from a slaughterhouse, a few miles above the post, from Indian villages 5 miles above, and from the Crow Agency school 11 miles distant, dangerous discharges from immigrants who occasionally camp on the stream, and seepage from fertilizers in gardens and farms under irrigation, the ditches being so numerous for 50 miles above that most of the water of the river was said to have run through some of these ditches before reaching the post. Typhoid fever made its appearance and diarrheas became common when the water was unusually foul. Orders were issued for the boiling of all water before its use for drinking, but it was found difficult to get the men to use the boiled water. They would drink directly from the faucets when at the post, not appreciating the danger, and when away from the garrison they drank directly from the stream. Plans and estimates were forwarded for the construction of a sand and gravel bed for slow filtration, but these were set aside in view of the possibility of getting a pure water from deep sources; but efforts in this direction failed. In September, 1897, the post surgeon reported the presence in hospital of 11 cases of typhoid fever and 1 suspected case awaiting diagnosis. The post was therefore abandoned.

Fort Harrison, Mont., has a water supply from a stream which runs past a mining village called Rimini, with an additional supply from Minnehaha Creek. Typhoid fever prevails in Helena and in the neighborhood of Fort Harrison, where this water supply is used. On account of this and of a fatal case which occurred among the troops the boiling of the drinking water was ordered. Some springs on the

reservation, described in my last annual report, were utilized subsequently to January, 1898, the water being hauled to the post in barrels.

Capt. Charles Willcox, assistant surgeon, United States Army, reported from Fort Bliss, N. Mex., in September, 1897, that from an analysis of the drinking water, made in Washington, D. C., and from personal observation, he was convinced that the typhoid fever cases occurring at the post had their origin in El Paso. The patients were enlisted men who frequently spent the night in that town on pass.

The water supply at Fort Ringgold, Tex., during the year was a source of much anxiety to the local authorities. During a rise of the river the water receded from the post, cutting into the right or Mexican bank of the stream, and the intake pipe of the water supply had to be extended until ultimately it had to be placed a short distance below the outfall of the sewers of the post. A local upward current from the sewers was believed, however, to prevent the contamination of the water pumped up for the use of the post. Further changes in the bed of the river ultimately necessitated the diversion of the sewage into a natural basin near the stream at a point above the intake. Here the sewage formed a pool of decomposing matter 25 by 75 feet, the odor from which was reported as vile, and on hot days unbearable. Capt. G. M. Wells, assistant surgeon, United States Army, recommended that a portable boiler, engine, and pump be provided to insure sufficient water for the needs of the post; that the pool of sewage be drained, and that the sewer system be extended so as to empty into the river below the intake. These recommendations were carried into effect in April, 1898.

The water supply of the post at Fort Walla Walla, Wash., is derived from springs which appear to have a dependence on the surface-water flow of a creek which is used for irrigating purposes. On this account some efforts have been made to condemn the water, with a view to bringing in the supply of the Walla Walla Water Company. Under date of February 28, 1898, Capt. F. R. Keefer, assistant surgeon, United States Army, reported on this subject as follows:

Only twice since the present system was installed (early in 1880) has doubt been cast on the quality of the water, and in neither case was the charge sustained. Major Koerber states in his sanitary report for April, 1891, that rumors were circulated to the effect that the water was impure and unfit for drinking purposes. He therefore had a chemical analysis made (the details of which I am unable to find) and also inspected the springs and their surroundings and found the water to be above suspicion. In October, 1897, the commanding officer stated in his indorsement on the sanitary report for that month his belief that certain diseases were the result of impurities in the water supply. To determine the character of this water I have recently made a careful analysis (chemical), the results of which indicate that the supply is of unusual purity. Referring to the register of sick and wounded for the past six years (January 1, 1893, to December 31, 1897, inclusive), I find that of cases of diseases among enlisted men of the command which might be charged to an impure drinking water there have been: Typhoid fever, 8; dysentery, 1; cholera morbus, 9, and acute diarrhea, 85, with only 1 fatal—a case of typhoid fever. During this period there were probably an equal number of cases of typhoid fever among civilians of the command. The average number of days lost on account of diarrhea and cholera morbus was but 24 per case, showing the mild character of the attack and probably negating the idea of an infection. As to the typhoid fever, the town of Walla Walla has no sewer system; privies are the usual receptacles for fecal discharges, and wells are frequently close to these. As a natural consequence, typhoid fever has for years been endemic, and the cases of this disease occurring at the post can usually be traced to town sources. No medical officer who has served at this station has suggested that our water is responsible for these cases. In August, 1891, July, 1892, August, 1896, and August, 1897, the sanitary reports note a scarcity of

water. In October, 1897, the quantity was again insufficient. In this month the interesting observation was made that the springs which are the source of our supply failed when the water of Garrison Creek, a small stream several hundred yards distant, was directed into an irrigating ditch. So soon as the creek water was allowed to assume its natural channel an abundant supply of water was had at the post. This demonstrated the fact that the springs were fed by seepage from the neighboring creek. The three springs from which the water is conducted are protected by two frame houses, in which are redwood tanks, sunk to a depth of several feet around each spring. These springs are surrounded by a high, board fence, inclosing one-half acre of ground. The land surrounding the fence is unbroken meadow pasture on three sides, and on the fourth is plowed. There are but two houses in the vicinity, the nearest being about 80 yards and the other 100 yards. There is a privy near each house. That belonging to the farther house does not menace the purity of the spring waters, because of its distance from these and because the direction of flow of the ground water is directly opposite. The other privy constitutes, in my opinion, the only probable risk of contamination. This is very slight, owing to its distance from the springs. Moreover, the man of whom the Government leases the spring promises to replace this privy by a water-tight metal tank at his own expense. Now as to quantity. The quartermaster at this post informs me that during the summer he daily draws from the reservoir at the post 20,000 gallons of water for sprinkling purposes. He further states that if the water so used could be obtained from other sources the supply furnished by the springs would be ample for all purposes. To meet this requirement seems easy. During the past summer an experimental well only about 13 feet deep was dug near the quartermaster's stable, which in November yielded a quantity of water estimated at over 50,000 gallons per hour for several hours, with but slight lowering of the water level. It would seem, therefore, that a tank placed near the well and filled from it by a pump, or water pumped directly from well to sprinkler, would answer the requirement perfectly. Although the water coming from our springs is seepage from a stream of questionable purity, it must traverse about 500 yards of earth before it finds outlet. Finally, the ditch which diverted the water from Garrison Creek belongs to the man who owns the springs, and he promises to see that in future the water will be turned into the bed of the stream well above its probable point of departure on its way to the springs.

During the month of November, 1897, an extension of the water system of Jefferson Barracks, Mo., was reported by the post surgeon as having been completed under the supervision of Capt. John T. Knight, assistant quartermaster, United States Army. The water is obtained from the St. Louis city main at the city limits on South Broadway, and is conveyed for a distance of 7,445 feet to the pump on the military reservation through a 10-inch cast-iron pipe laid between 4 and 5 feet below the surface of the ground. The ground traversed by the pipe is rolling, and at the pump house is 60 feet above the level of the ground at the city limits; but the city pressure is adequate to furnish water at this point, whence it is pumped direct to the post and to a steel tank on ground about 50 feet higher than the pump. The tank holds 50,000 gallons and stands 50 feet from the ground to its bottom and 70 feet to its top. The distributing system consists of 6-inch and 4-inch cast-iron pipes, laid in lines adjacent to the buildings, with surface pipe valves and hydrants. The post at the road in front of the hospital is at about the same elevation as the pump house. The pump is capable of 500 gallons per minute at ordinary speed.

FOOD.

The food issued to the men was reported from all the posts as being ample in quantity and of excellent quality. At some posts it is stated that the diet was varied by purchases from allotments of profits from the post exchange, and in summer from the yield of the post garden.

CLOTHING.

The clothing was reported of good quality and suitable to the requirements of the climate at all the posts during the calendar year. At Fort Yellowstone an exception was made in the case of a few men who were much exposed on detached service at winter stations in the park. These stations are six in number, with a noncommissioned officer and four men at each. Their duties are arduous, as they are required to make long, exhausting trips on skis, the only means of getting about because of the deep snow. In March, 1894, a soldier lost his life while on one of these trips, and in December, 1897, another soldier died from a similar exposure. According to Capt. A. E. Bradley, assistant surgeon, United States Army, who reported the case:

Those having large experience in work of this kind advocate a blanket suit, arctic or "German" socks, with low-cut gum shoes with heels; in addition to this, I believe a knit woolen elastic cap would be more suitable than any of the head covering issued; possibly suits of blanket-lined canvas, or jeans, would be best, if not too rigid and stiff. The "knit woolen" underwear now issued is largely cotton, is stiff, harsh, and poor protection to one exposed to extreme cold; a better quality, at least for these men, should be supplied. These men now, at considerable expense, have every winter to supply themselves with additional clothing suitable to the work they are required to do. This is manifestly unjust to them. It is recommended that provision be made to issue to them a better woolen underwear, a suitable outer shirt, either blanket, or blanket-lined canvas or jeans, an elastic woolen head covering, arctic socks, and suitable gum shoes.

In his report from Key West Barracks, November, 1897, Capt. Paul Clendenin states that many of the men when not on duty wear white canvas shoes with their white clothing. Personal experience, he says, has proved this to be the most comfortable foot gear in a hot climate. The shoe is cool, well ventilated, and can easily be kept neat in appearance.

FACILITIES FOR BATHING.

Few references were made during the year to bathing facilities for the troops, from which it may be inferred that these are satisfactory. The spray bath seems to be better adapted for military use than the bath tub. Spray baths were introduced at Columbus Barracks, Ohio, in January, 1898. They consist of open stalls of galvanized iron, with iron pipes, through the perforations of which water at a desired temperature is delivered in the form of a fine spray on the person of the bather. It is an adaptation of the spray or rain bath now in use in the free public establishments of the cities of New York, Boston, and Chicago, and in the baths of the quarantine stations, where large numbers of immigrants are cleaned before being admitted into our ports. This system should be extended in preference to the iron bath tub, which is so difficult to keep clean and so costly to maintain.

HABITS.

The habits of the men have been reported as generally good. At one post the surgeon considered that the men had too many idle hours and that they would be better off with more time spent in physical exercise. Inclement weather, and the fact that the ground was deeply covered with snow, were cited as the causes of the enforced idleness, but the reply was made that compulsory physical exercise does not

necessarily imply outdoor work. It can be well supplied by systematic gymnastics under cover.

At two posts the excessive prevalence of venereal diseases led the medical officers on duty to consider measures for their repression. One proposed that the number of days lost to the Government in any case from these diseases be charged against the man affected, or, as an alternative, that charges be preferred for contracting disease through vicious habits. The objection to these procedures is that they would not really lessen the prevalence, but would lead the affected men to hide their malady and seek outside treatment. The other medical officer suggested the discharge of all men who were disabled more than thirty days, but as the fixing of a time limit is unnecessary in view of Army Regulation 140, which provides for discharge when disease is incurred by misconduct or bad habits, and as, moreover, discharge does not lessen the prevalence among the men, he subsequently entered into communication with the health authorities of the neighboring city, in which most of the cases originated, with the view of urging the institution of repressive measures. The removal of the troops from the locality, in view of a probability of active service, prevented further action on these lines.

STATISTICAL TABLES.

The statistical tables, pp. 647-687, give in detail the data on which the statements of this report are based. They are:

I. Numerical view of the effects of disease and injury on the Army during the calendar year 1897 as compared with the corresponding data for 1896 and for the decade 1886-1895.

II. Relative sickness among the troops (white and colored) in the various military departments during the year 1897.

III. Military posts in each department, alphabetically arranged, with mean strength, and admissions for disease and injury; also discharges and deaths, with ratios per thousand of strength for admissions and noneffectiveness, the averages of daily sickness, and the meteorological data for 1897.

IV. General view of the results of disease and injury at each of the military stations, arranged in the order of their mean strength.

V. Twenty posts having the highest admission rates for the year 1897; also their admission rates for the years 1892 to 1896, inclusive.

VI. Twenty posts having the lowest admission rates for the year 1897; also their admission rates for the years 1892 to 1896, inclusive.

VII. Twenty posts having the highest noneffective rates for the year 1897; also their noneffective rates for the years 1892 to 1896, inclusive.

VIII. Twenty posts having the lowest noneffective rates for the year 1897; also their noneffective rates for the years 1892 to 1896, inclusive.

IX. Twenty posts having the highest admission rates for disease, excluding venereal diseases, vaccinia, and alcoholism; also their ratios for deaths, discharges, and constant noneffectiveness, and the corresponding average rates for the Army, year 1897.

X. Twenty posts having the highest noneffective rates for disease, excluding venereal diseases, vaccinia, and alcoholism; also the average number sick daily, the average duration of each case, and the corresponding average rates of the Army, year 1897.

XI. The military posts in each department, showing the rates of admission, death, discharge, and constant noneffectiveness for disease, excluding venereal diseases, vaccinia, and alcoholism, year 1897.

XII. Ratios of admission to sick report, discharge, death, and constantly noneffective of the Army and of the troops in the several departments for the year 1897, as compared with the ratios for the Army for 1896 and for the decade 1886-1895.

XIII. Distribution of certain important diseases at United States military posts during the year 1897.

XIV. Twenty posts giving the highest admission rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, respectively, during 1897.

XV. Twenty posts giving the highest noneffective rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, respectively, during 1897.

XVI. Prevalence of alcoholism at the various posts and its influence on the effective force of the garrisons for the year 1897.

XVII. Causes of rejection on primary examination among 13,139 recruits physically examined during the year 1897, with corresponding ratios per thousand of each race examined.

XVIII. Number of white and colored applicants for enlistment physically examined during the year 1897, with the number accepted, rejected on primary examination, and declined, and ratios per thousand.

XIX. Nativity of white and colored recruits accepted during the year 1897, with ratios per thousand accepted.

XX. Average height, weight, and chest measure of 9,226 recruits accepted during the year 1897 (native white, 6,062; foreign born white, 2,371; colored, 793).

INTERNATIONAL TABLES.

I. Examination of recruits during the year 1897.

II. Movements of sick, by departments.

III. Movements of sick, by branches of military service and by months.

IV. Movements of sick, by large garrisons.

V. Movements of sick, according to most important diseases.

VI. Admissions of important diseases, by branches of military service.

VII. Admissions of important diseases, by months (absolute numbers).

VIII. Deaths, according to years of service and age.

TABLE I.—Numerical view of the effects of disease and injury on the Army during the calendar year 1897, as compared with the corresponding data for 1896 and for the decade 1886-1895.

United States Army.	White.	Colored.	Total.
Average strength shown—			
By returns of Adjutant-General	a 25,165	a 2,209	a 27,374
By reports of Medical Department	b 23,253	b 2,164	b 25,417
Total admissions to sick report	27,458	2,702	30,160
Per 1,000 of mean strength	1,180.84	1,248.61	1,186.61
Per 1,000 for previous year	1,132.49	868.88	1,110.39
Per 1,000 for preceding decade	1,254.15	1,313.43	1,258.89
Admissions for disease	20,713	2,074	22,787
Per 1,000 of mean strength	890.77	958.41	896.53
Per 1,000 for previous year	849.05	629.45	830.65
Per 1,000 for preceding decade	1,005.77	1,022.31	1,006.22
Admissions for injury	6,745	628	7,373
Per 1,000 of mean strength	290.07	290.20	290.08
Per 1,000 for previous year	288.44	239.43	279.76
Per 1,000 for preceding decade	248.38	291.13	252.07
Admissions treated in quarters	9,899	1,030	10,929
Per 1,000 of mean strength	425.71	475.97	429.99
Admissions treated in hospital	10,888	1,555	17,943
Per 1,000 of mean strength	704.77	718.58	705.94
Admissions treated in the field	1,171	117	1,288
Per 1,000 of mean strength	50.36	54.07	50.68
Number constantly noneffective	830.87	80.59	911.16
Per 1,000 of mean strength	35.72	37.24	35.85
Per 1,000 for previous year	34.72	25.75	33.97
Per 1,000 for preceding decade	40.34	38.92	40.26
Noneffective for disease	619.58	59.76	679.34
Per 1,000 of mean strength	26.65	27.61	26.78
Per 1,000 for previous year	25.87	18.35	25.23
Per 1,000 for preceding decade	31.80	29.53	31.62
Noneffective for injury	210.99	20.83	231.82
Per 1,000 of mean strength	9.07	9.63	9.13
Per 1,000 for previous year	8.86	7.40	8.73
Per 1,000 for preceding decade	8.54	9.39	8.64
Days lost on account of sickness	303,159	29,414	332,573
For each man of Army	13.04	13.59	13.08
For each man, previous year	12.71	9.42	12.43
For each man, preceding decade	14.69	14.18	14.04
Average days each case was treated	11.04	10.89	11.03
For previous year	11.22	10.84	11.19
For preceding decade	11.70	10.96	11.63
Average days' treatment for patients returned to duty	9.54	9.75	9.56
Average days' treatment for patients discharged for disability	96.08	80.76	94.86
Average days' treatment for patients who died	23.57	30.09	24.24
Discharges for disability, all causes	242	21	263
Per 1,000 of mean strength	9.62	9.51	9.61
Per 1,000 for previous year	10.18	10.43	10.15
Per 1,000 for preceding decade	19.72	19.97	19.78
Discharges for disease	191	17	208
Per 1,000 of mean strength	7.59	7.70	7.60
Per 1,000 for previous year	8.05	9.07	8.13
Per 1,000 for preceding decade	16.34	16.48	16.39
Discharges for injury	51	4	55
Per 1,000 of mean strength	2.03	1.81	2.01
Per 1,000 for previous year	2.08	1.36	2.02
Per 1,000 for preceding decade	3.39	3.49	3.39
Deaths from all causes	127	13	140
Per 1,000 of mean strength	5.05	5.89	5.11
Per 1,000 for previous year	5.28	7.25	5.44
Per 1,000 for preceding decade	7.12	8.45	7.32
Deaths from disease	80	6	86
Per 1,000 of mean strength	3.18	2.72	3.14
Per 1,000 for previous year	3.76	4.53	3.83
Per 1,000 for preceding decade	4.84	6.06	4.99
Deaths from injury	47	7	54
Per 1,000 of mean strength	1.87	3.17	1.97
Per 1,000 for previous year	1.52	2.72	1.62
Per 1,000 for preceding decade	2.28	2.40	2.33

a Used in computing the ratios of discharges and deaths for the Army.

b Used in computing all ratios for the Army except those of discharges and deaths.

TABLE II.—*Relative sickness among the troops (white and colored) in the various military departments during the year 1897.*

Department.	Mean strength of command.	Admissions.						Admission rate per 1,000 of mean strength.	Constantly non-effective per 1,000 of mean strength.
		Quarters.	Hospital.	Field.	Disease.	Injury.	Total.		
East:									
White only	8,018	3,533	6,219	351	7,865	2,238	10,103	1,260.04	35.83
Missouri:									
White only	4,341	2,177	2,766	218	3,919	1,242	5,161	1,188.89	36.25
Dakota:									
White	1,424	646	641	202	1,051	438	1,489	1,045.65	35.74
Colored	1,089	251	650	61	675	287	962	883.38	31.57
Total	2,513	897	1,291	263	1,726	725	2,451	975.33	33.93
Platte:									
White	2,157	782	1,834	77	1,993	700	2,693	1,248.49	35.95
Colored	455	350	328	10	513	175	688	1,512.09	41.80
Total	2,612	1,132	2,162	87	2,506	875	3,381	1,294.41	36.99
Texas:									
White only	1,762	1,031	1,550	101	2,112	570	2,682	1,522.14	39.65
Colorado:									
White	2,471	1,217	1,556	109	2,044	838	2,882	1,166.33	34.48
Colored	616	429	576	46	885	166	1,051	1,706.17	40.36
Total	3,087	1,646	2,132	155	2,929	1,004	3,933	1,274.05	35.66
California:									
White only	1,588	203	997	92	889	403	1,292	813.60	26.33
Columbia:									
White only	1,452	310	808	21	823	316	1,139	784.44	25.65
General hospital, Hot Springs, Ark.:									
White	40		17		17				
Colored	4		1		1				
Total	44		18		18				
Discharges and deaths at large:									
White									
Colored									
Total									
The Army:									
White	23,253	9,899	16,388	1,171	20,713	6,745	27,458	1,180.84	35.72
Colored	2,164	1,030	1,555	117	2,074	628	2,702	1,246.61	37.24
Total	25,417	10,929	17,943	1,288	22,787	7,373	30,160	1,186.61	35.85

TABLE II.—*Relative sickness among the troops (white and colored) in the various military departments during the year 1897—Continued.*

Department.	Deaths.	Annual death rate per 1,000 of mean strength.	Discharges for disability.	Annual discharge rate per 1,000 of mean strength.	Averaged duration of treatment among patients—		Death rate per 1,000 of admissions.	Discharge rate per 1,000 of admissions.	Recovers per 1,000 of admissions.	Average sick daily.	Average duration of treatment among all admissions.
					Who died.	Who were discharged for disability.					
East:											
White only.....	45	5.61	71	8.85	17.80	83.40	4.45	7.03	960.80	287.28	10.38
Missouri:											
White only.....	23	5.30	30	6.91	16.78	86.06	4.46	5.81	969.97	157.36	11.13
Dakota:											
White.....	6	4.21	17	11.94	2.00	105.76	4.03	11.42	944.93	50.90	12.48
Colored.....	6	5.51	7	6.43	54.33	118.71	6.24	7.28	950.05	34.38	13.04
Total.....	12	4.77	24	9.55	28.17	109.54	4.90	9.79	947.00	85.28	12.70
Platte:											
White.....	15	6.95	7	3.25	24.27	152.29	5.57	2.60	977.72	77.56	10.51
Colored.....	4	8.79	5	10.99	15.25	70.20	5.81	7.27	970.93	19.05	10.11
Total.....	19	7.27	12	4.59	22.37	118.67	5.62	3.55	976.38	96.61	10.43
Texas:											
White only.....	11	6.24	13	7.38	5.27	100.38	4.10	4.85	963.08	69.88	9.51
Colorado:											
White.....	8	3.24	37	14.96	99.50	120.70	2.78	12.84	973.64	85.21	10.79
Colored.....	3	4.87	6	9.74	4.00	85.67	2.85	5.71	967.66	24.86	8.64
Total.....	11	3.56	43	13.93	73.45	115.81	2.80	10.93	972.03	110.07	10.21
California:											
White only.....	5	3.15	10	6.30	24.40	66.40	3.87	7.74	950.47	41.81	11.81
Columbia:											
White only.....	9	6.20	15	10.33	36.56	75.47	7.90	13.17	963.13	37.25	11.94
General hospital, Hot Springs, Ark.:											
White.....	1		23		126.00	187.35				23.34	
Colored.....										2.29	
Total.....	1		23		126.00	187.35				25.63	
Discharges and deaths at large:											
White.....	4		19								
Colored.....			3								
Total.....	4		22								
The Army:											
White.....	127	5.05	242	9.62	23.58	96.08	4.63	8.81	966.20	830.57	11.04
Colored.....	13	5.89	21	9.51	30.69	80.76	4.81	7.77	965.21	80.59	10.89
Total.....	140	5.11	263	9.61	24.24	94.86	4.64	8.72	966.11	911.16	11.03

TABLE III.—*Military posts in each department, alphabetically arranged, with mean strength, and admissions for disease and injury; also discharges and deaths, with ratios per thousand of strength for admission and noneffectiveness, the averages of daily sickness, and the meteorological data for 1897.*

DEPARTMENT OF THE EAST.

Name of station.	Mean strength.	Cases.			Admission rate per 1,000 of mean strength.	Average number of sick daily.	Constantly noneffective per 1,000 of mean strength.	Discharges for disability.	Deaths.	Altitude of station.	Temperature.			Total precipitation.
		Disease.	Injury.	Total.							Mean.	Maximum.	Minimum.	
										Feet.	°	°	°	In.
Adams, Fort, R. I.	244	324	152	476	1,676.06	14.68	51.68	3	1	30	.....	.....	.....	.....
Allegheny Arsenal, Pa.	30	13	3	16	533.33	.28	9.32	1	2	704	54.6	96	—	7 35.08
Augusta Arsenal, Ga.	28	18	6	24	857.14	1.45	51.66	2	1	600	64.8	101	12	51.83
Baltimore attending surgeon, Md.	7	.....	.....	.....	.....	.....	.....	.....	.....	55.2	97	8	.....	47.49
Barrancas, Fort, Fla.	130	180	80	260	2,000.00	10.05	77.34	2	3	30	68.6	98	17	40.69
Boston attending surgeon, Mass.	7	1	.....	1	142.86	.003	.39	.....	.....	49.9	94	2	.....	40.77
Columbia Arsenal, Tenn.	20	20	2	22	1,100.00	.30	14.93	.....	1	.....	.....	.....	.....	.....
Columbus Barracks, Ohio.	517	459	104	563	1,088.97	19.47	37.66	5	5	759	52.9	102	—	10 41.15
Columbus, Fort, N. Y.	247	209	56	265	1,072.87	7.94	32.15	2	.....	25	51.6	91	5	44.27
Ethan Allen, Fort, Vt.	234	161	57	218	931.62	6.75	28.86	.....	1	332	46.6	96	—	15 43.44
Frankford Arsenal, Pa.	46	44	2	46	1,000.00	1.52	52.94	1	.....	12	54.6	96	7	42.04
Hamilton, Fort, N. Y.	283	145	65	210	742.05	8.86	31.32	2	1	47	51.6	91	5	44.27
Jackson Barracks, La.	108	137	31	168	1,555.56	5.54	51.27	2	1	10	70.2	99	23	43.47
Kennebec Arsenal, Me.	16	9	.....	9	562.50	.11	6.85	.....	.....	200	.....	.....	.....	.....
Key West Barracks, Fla.	127	107	23	130	1,023.62	4.81	37.88	1	.....	12	77.2	91	51	46.46
Madison Barracks, N. Y.	486	466	143	609	1,253.09	17.68	36.37	5	1	262	44.8	99	21	24.05
McHenry, Fort, Md.	177	129	28	157	887.00	4.26	24.09	.....	.....	36	55.2	97	8	47.49
McPherson, Fort, Ga.	458	464	123	587	1,281.66	20.64	45.06	5	5	1,200	61.8	97	6	51.83
Monroe, Fort, Va.	551	581	154	735	1,333.94	23.58	42.80	2	4	7	60.1	96	11	42.66
Myer, Fort, Va.	281	388	123	511	1,818.50	14.51	51.65	7	3	200	54.9	97	8	44.58
New York attending surgeon, N. Y.	21	5	1	6	285.71	.07	3.52	.....	.....	51.6	91	—	5	44.27
Niagara, Fort, N. Y.	201	166	44	210	1,044.78	4.20	20.88	1	.....	271	47.6	95	—	1 30.33
Philadelphia attending surgeon, Pa.	22	3	.....	3	136.36	.38	17.31	1	.....	54.6	96	—	7	42.04
Plattsburg Barracks, N. Y.	522	394	154	548	1,049.81	14.67	28.11	6	3	186	43.2	95	—	18 35.73
Porter, Fort, N. Y.	130	52	19	71	546.15	2.49	19.18	.....	1	600	48.0	95	0	37.72
Preble, Fort, Me.	70	47	27	74	1,057.14	2.62	37.46	.....	.....	51	45.1	94	—	8 42.42
St. Francis Barracks, Fla.	144	207	49	256	1,777.78	5.82	40.41	1	3	10	69.4	99	22	55.10
Sandy Hook proving ground, N. J.	72	33	9	42	583.33	.40	5.52	.....	.....	.....	.....	.....	.....	.....
Schuyler, Fort, N. Y.	131	153	45	198	1,511.45	3.39	25.89	.....	.....	25	51.6	91	—	5 44.27
Slocum, Fort, N. Y.	193	248	77	325	1,683.94	7.13	36.92	4	.....	30	51.6	91	—	5 44.27
Springfield Armory, Mass.	39	43	18	61	1,564.10	1.31	33.51	.....	.....	250	46.2	92	—	6 55.38
Sullivan's Island, S. C.	14	5	3	8	571.43	.24	17.22	.....	.....	67.1	99	19	50	65
Thomas, Fort, Ky.	459	480	92	572	1,246.19	23.95	52.17	5	2	920	55.3	98	—	11 39.71
Trumbull, Fort, Conn.	66	54	15	69	1,045.45	1.71	25.90	1	.....	25	48.7	89	5	47.76
Wadsworth, Fort, N. Y.	194	288	82	370	1,907.22	7.21	37.17	2	.....	160	51.6	91	—	5 44.27
Warren, Fort, Mass.	133	77	36	113	849.62	3.15	23.65	.....	1	38	49.9	94	2	40.77
Washington Barracks, D. C.	295	451	68	519	1,759.32	14.01	47.48	4	1	106	54.9	97	8	44.58
Washington, Fort, Md.	30	160	18	178	5,933.33	3.01	100.46	.....	.....	.....	.....	.....	.....	.....
Watertown Arsenal, Mass.	41	27	7	34	829.27	.96	23.39	.....	.....	100	.....	.....	.....	.....
Watervliet Arsenal, N. Y.	59	60	16	76	1,288.14	1.69	28.70	.....	1	50	48.8	96	—	5 40.79
West Point, N. Y.	381	369	102	471	1,236.22	10.17	26.70	3	2	167	49.4	95	0	54.35
Willels Point, N. Y.	426	420	121	541	1,269.95	11.80	27.71	3	2	70	51.5	96	—	7 47.80
Field	338	268	83	351	1,038.46	4.47	13.23	.....	2	.....	.....	.....	.....	.....
Total	8,018	7,865	2,238	10,103	1,260.04	287.28	35.83	71	45	.....	.....	.....	.....	.....

TABLE III.—*Military posts in each department, alphabetically arranged, with mean strength, and admissions for disease and injury, etc.—Continued.*

DEPARTMENT OF THE MISSOURI.

Name of station.	Mean strength.	Cases.			Admission rate per 1,000 of mean strength.	Average number of sick daily.	Constantly noneffective per 1,000 of mean strength.	Discharges for disability.	Deaths.	Altitude of station.	Temperature.			Total precipitation.
		Disease.	Injury.	Total.							Mean.	Maximum.	Minimum.	
Brady, Fort, Mich	255	147	47	194	760.78	0.57	25.75	2	...	<i>Feet.</i> 696	39.7	92	-21	36.16
Chicago headquarters, Ill.	26	1	.....	1	38.46	.30	1.17	...	1	661	48.8	95	-20	25.85
Indianapolis Arsenal, Ind.	25	53	5	58	2,320.00	.63	25.21	...	...	698	53.0	99	-14	42.15
Jefferson Barracks, Mo.	352	379	123	502	1,426.13	15.38	43.69	4	2	475	57.4	101	-2	40.17
Leavenworth, Fort, Kans.	798	814	185	999	1,251.88	34.94	43.78	3	3	814	55.4	102	-4	30.21
Logan H. Roots, Fort, Ark.	134	155	12	167	1,246.27	3.98	29.69	1	1	302	63.1	102	12	46.78
Reno, Fort, Okla.	344	225	145	370	1,075.56	12.19	35.45	3	2	1,400	59.6	107	0	25.66
Riley, Fort, Kans.	785	821	344	1,165	1,484.08	32.73	41.70	6	5	1,300	55.8	105	-6	22.79
Rock Island Arsenal, Ill.	75	114	16	130	1,733.33	2.90	38.72	...	...	528	50.3	99	-19	23.91
Sheridan, Fort, Ill.	739	497	171	668	903.92	20.73	28.05	4	5	746	47.1	95	-21	26.83
Sill, Fort, Okla.	381	373	84	457	1,199.47	12.58	33.01	3	1	1,200	60.5	106	4	26.29
Wayne, Fort, Mich.	279	173	59	232	831.54	10.69	38.32	4	2	580	48.4	94	-16	30.34
Field	148	167	51	218	1,472.97	3.74	25.25	...	1	.....	.....	.....	.....	.....
Total	4,341	3,919	1,242	5,161	1,188.89	157.36	36.25	30	23	.....	.....	.....	.....	.....

DEPARTMENT OF DAKOTA.

Aasiuniboine, Fort, Mont.	488	293	142	435	891.39	14.33	29.37	4	3	2,690	40.0	97	-43	13.30
Custer, Fort, Mont.	294	192	64	256	870.75	11.27	38.33	2	13	238	.....	.....	.....	.....
Harrison, Fort, Mont.	137	78	31	109	795.62	3.99	29.10	2	14	400	43.2	96	-24	16.16
Keogh, Fort, Mont.	294	372	103	475	1,615.65	17.54	59.67	8	22	365	43.5	103	-39	7.60
Missoula, Fort, Mont.	272	172	56	228	838.24	8.27	30.39	...	23	330	43.7	95	-17	19.98
St. Paul headquarters, Minn.	24	3	1	4	166.67	.55	23.06	...	...	840	45.7	94	-26	30.52
Snelling, Fort, Minn.	488	358	135	493	1,010.25	20.35	41.70	7	1	840	43.7	94	-26	30.52
Yates, Fort, N. Dak.	184	98	53	151	820.65	4.65	25.30	1	11	670	40.7	107	-38	18.32
Yellowstone, Fort, Wyo.	132	22	15	37	280.30	.88	6.68	...	16	270	39.1	89	-39	15.62
Field	200	138	125	263	1,315.00	3.45	17.23	...	.....	.....	.....	.....	.....	.....
Total	2,513	1,726	725	2,451	975.33	85.28	33.93	24	12	.....	.....	.....	.....	.....

DEPARTMENT OF THE PLATTE.

Crook, Fort, Nebr.	519	454	135	589	1,134.87	21.23	40.91	4	1	960	50.9	102	-13	21.30
D. A. Russell, Fort, Wyo.	460	499	213	712	1,547.83	19.68	42.79	1	3	6,205	44.5	92	-21	17.25
Meade, Fort, S. Dak.	475	605	188	793	1,669.47	18.35	38.64	...	53	624	.....	.....	.....	.....
Niobrara, Fort, Nebr.	513	318	126	444	865.50	13.69	26.69	2	42	600	47.1	100	-20	23.69
Omaha headquarters, Nebr.	12	9	.....	9	750.00	.15	12.56	...	.....	960	50.9	102	-13	21.30
Robinson, Fort, Nebr.	404	476	129	605	1,497.53	19.10	47.27	4	43	764	46.9	101	-21	10.49
Washakie, Fort, Wyo.	119	88	54	142	1,193.28	3.71	31.17	1	15	462	42.4	92	-30	10.39
Field	110	57	30	87	790.91	.70	6.35	...	1	.....	.....	.....	.....	.....
Total	2,612	2,506	875	3,381	1,294.41	96.61	36.99	12	19	.....	.....	.....	.....	.....

DEPARTMENT OF TEXAS.

Bliss, Fort, Tex.	211	136	51	187	886.26	6.02	28.55	1	13	700	63.1	102	17	12.41
Brown, Fort, Tex.	112	147	48	195	1,741.07	7.13	63.70	...	47	.....	.....	.....	.....	.....
Clark, Fort, Tex.	373	651	160	811	2,174.26	18.49	49.58	3	1	1,133	68.7	106	14	11.32
Eagle Pass, Camp, Tex.	64	98	23	121	1,890.62	3.49	54.58	1	.....	800	72.2	110	20	10.30
McIntosh, Fort, Tex.	128	214	82	296	2,312.50	6.67	52.14	1	1	806	71.8	107	21	19.87
Ringgold, Fort, Tex.	123	124	45	169	1,373.98	5.48	44.55	1	2	147	72.8	104	23	18.19
San Houston, Fort, Tex.	645	668	131	799	1,238.76	21.53	33.37	6	5	779	69.4	103	18	15.92
San Antonio headquar- ters, Tex.	14	3	.....	3	214.29	.08	6.07	...	781	69.4	103	18	15.92	.....
Field	92	71	30	101	1,097.83	.97	10.54	...	1	.....	.....	.....	.....	.....
Total	1,762	2,112	570	2,682	1,522.14	69.88	39.65	13	11	.....	.....	.....	.....	.....

TABLE III.—*Military posts in each department, alphabetically arranged, with mean strength, and admissions for disease and injury, etc.*—Continued

DEPARTMENT OF THE COLORADO.

Name of station.	Mean strength.	Cases.			Admission rate per 1,000 of mean strength.	Average number of sick daily.	Constantly noneffective per 1,000 of mean strength.	Discharges for disability.	Deaths.	Altitude of station.	Temperature.			
		Disease.	Injury.	Total.							Mean.	Maximum.	Minimum.	Total precipitation.
										Feet.	°	°	°	In.
Apache, Fort, Ariz.....	355	174	125	299	842.25	8.64	24.33	5	5	5,200	53.7	97	5	14.93
Bayard, Fort, N. Mex.....	361	225	102	327	905.82	10.22	28.31	3	3	2,750	54.2	96	9	17.00
Denver headquarters, Colo.....	16	3	.....	3	187.50	32	19.86	.....	.....	5,290	49.4	96	14	15.37
Douglas, Fort, Utah.....	523	774	126	900	1,720.84	22.33	42.70	6	3	4,920	50.2	98	2	16.74
DuChesne, Fort, Utah.....	115	106	28	134	1,165.22	4.96	43.09	.....	.....	5,000	42.7	98	24	11.43
Grant, Fort, Ariz.....	317	223	102	325	1,025.24	8.00	25.23	3	3	4,916	61.0	98	19	13.87
Huachuca, Fort, Ariz.....	205	377	132	509	1,725.42	14.86	50.37	10	2	5,100	60.3	98	15	16.68
Logan, Fort, Colo.....	620	652	221	873	1,408.06	25.25	40.73	9	9	2,550	49.4	99	14	15.37
San Carlos, Ariz.....	43	30	12	42	976.74	6.66	15.36	.....	.....	2,456	63.8	109	20	7.90
Whipple Barracks, Ariz.....	161	119	38	157	975.16	8.50	52.80	6	6	2,531	51.7	97	8	21.88
Wingate, Fort, N. Mex.....	141	145	64	209	1,482.27	4.62	32.80	1	1	7,000	50.3	94	3	18.94
Field.....	140	101	54	155	1,107.14	1.72	12.25	.....	.....	.....	.....	.....	.....	.....
Total.....	3,087	2,929	1,004	3,933	1,274.05	110.07	35.66	43	11	.....	.....	.....	.....	.....

DEPARTMENT OF CALIFORNIA.

Alcatraz Island, Cal.....	135	71	25	96	711.11	3.33	24.66	.....	.....	135	55.1	92	38	16.40
Angel Island, Cal.....	230	127	22	149	647.83	7.32	32.72	1	.....	150	55.1	92	38	16.40
Benicia Barracks, Cal.....	205	115	55	170	829.27	5.18	25.27	3	.....	160	55.1	92	38	16.40
Mason, Fort, Cal.....	70	29	9	38	542.86	2.36	31.66	.....	.....	80	55.1	92	38	16.40
Presidio of San Francisco, Cal.....	745	441	220	661	887.25	19.44	26.10	3	5	72	55.1	92	38	16.40
San Diego Barracks, Cal.....	66	43	36	79	1,196.96	2.68	40.60	3	.....	661	0	89	36	8.93
San Francisco headquar- ters, Cal.....	27	6	1	7	259.26	1.18	6.59	.....	.....	55.1	92	38	16.40	
Field.....	110	57	35	92	836.37	1.12	10.14	.....	.....	.....	.....	.....	.....	.....
Total.....	1,588	889	403	1,292	813.60	41.81	26.33	10	5	.....	.....	.....	.....	.....

DEPARTMENT OF THE COLUMBIA.

Boise Barracks, Idaho.....	123	54	34	88	715.45	2.65	21.56	1	2	2,765	50.9	107	5	16.98
Canby, Fort, Wash.....	74	23	22	45	608.11	1.11	14.96	.....	.....	8	50.4	85	26	75.15
Sherman, Fort, Idaho.....	340	206	55	261	767.65	9.43	27.74	6	2	2,140	46.8	96	4	33.35
Spokane, Fort, Wash.....	129	71	28	99	767.44	2.48	19.26	.....	.....	1,140	48.2	100	3	23.80
Vancouver Barracks, Wash.....	560	327	122	449	801.79	12.82	22.90	5	2	50	53.1	95	22	43.01
Walla Walla, Fort, Wash.....	192	131	45	176	916.67	8.47	44.10	3	1	865	53.1	105	0	21.67
Field.....	34	11	10	21	617.65	2.28	8.22	.....	.....	.....	.....	.....	.....	.....
Total.....	1,452	823	316	1,139	784.44	37.25	25.65	15	9	.....	.....	.....	.....	.....

SUNDY.

General hospital, Hot Springs, Ark.....	44	18	.....	18	409.09	25.63	.....	23	1	.....	64.2	108	10	54.85
At large.....	.....	.....	.....	.....	.....	.....	.....	22	4	.....	.....	.....	.....	.....
The Army.....	25,417	22,787	7,373	30,160	1,186.61	911.16	35.85	263	140	.....	.....	.....	.....	.....

TABLE IV.—General view of the results of disease and injury at each of the military stations, arranged in the order of their mean strength.

GROUP 1.—THIRTEEN STATIONS, GARRISONED BY 500 MEN OR MORE EACH.

Name of station.	Mean strength.	Admission rate per 1,000 of mean strength.	Constantly non-effective.			Discharges.		Deaths.	
			Daily average in hospital.	Ratio per 1,000 of mean strength.		Number.	Ratio per 1,000 of mean strength.	Number.	Ratio per 1,000 of mean strength.
				Cases in hospital.	All cases.				
Fort Leavenworth, Kans.....	798	1,251.88	24.39	30.57	43.78	3	3.76	3	3.76
Fort Riley, Kans.....	785	1,484.08	18.62	23.72	41.70	6	7.64	5	6.37
Presidio of San Francisco, Cal..	745	887.25	18.08	24.27	26.10	3	4.03	5	6.71
Fort Sheridan, Ill.....	739	903.92	16.02	21.68	28.05	4	5.41	5	6.77
Fort Sam Houston, Tex.....	645	1,238.76	16.94	26.26	33.37	6	9.30	5	7.75
Fort Logan, Colo.....	620	1,408.06	17.11	27.60	40.73	9	14.52	2	3.23
Vancouver Barracks, Wash.....	560	801.79	7.72	13.79	22.90	5	8.93	2	3.57
Fort Monroe, Va.....	551	1,333.94	12.87	23.36	42.80	2	3.63	4	7.26
Fort Douglas, Utah.....	523	1,720.84	17.09	32.68	42.70	6	11.47	3	5.74
Plattsburg Barracks, N. Y.....	522	1,049.81	10.30	19.74	28.11	6	11.49	3	5.75
Fort Crook, Nebr.....	519	1,134.87	16.82	32.42	40.91	4	7.71	1	1.93
Columbus Barracks, Ohio.....	517	1,088.97	16.67	32.24	37.66	5	9.67	5	9.67
Fort Niobrara, Nebr.....	513	865.50	11.62	22.65	28.69	2	3.90	4	7.80
Mean.....	618		15.71						
Summary.....	8,037	1,168.72	204.25	25.42	35.14	61	7.59	47	5.85

GROUP 2.—NINE STATIONS, GARRISONED BY 400 TO 500 MEN EACH.

Fort Assinniboine, Mont.....	488	891.39	11.13	22.82	29.37	4	8.20	3	6.15
Fort Snelling, Minn.....	488	1,010.25	13.82	28.31	41.70	7	14.34	1	2.05
Madison Barracks, N. Y.....	486	1,253.09	10.33	21.26	36.37	5	10.29	1	2.08
Fort Meade, S. Dak.....	475	1,669.47	12.36	26.03	38.64			5	10.53
Fort D. A. Russell, Wyo.....	460	1,547.83	12.82	27.88	42.79	1	2.17	3	6.52
Fort Thomas, Ky.....	459	1,246.19	19.41	42.29	52.17	5	10.89	2	4.36
Fort McPherson, Ga.....	458	1,281.66	12.65	27.63	45.06	5	10.92	5	10.92
Willetts Point, N. Y.....	426	1,269.95	10.56	24.79	27.71	3	7.04	2	4.69
Fort Robinson, Nebr.....	404	1,497.53	11.23	27.80	47.27	4	9.90	4	9.90
Mean.....	460		12.70						
Summary.....	4,144	1,290.30	114.33	27.59	40.03	34	8.20	26	6.27

GROUP 3.—NINE STATIONS, GARRISONED BY 300 TO 400 MEN EACH.

Fort Sill, Okla.....	381	1,199.47	6.77	17.77	33.01	3	7.87	1	2.62
West Point, N. Y.....	381	1,236.22	8.39	22.03	26.70	3	7.87	2	5.25
Fort Clark, Tex.....	373	2,174.26	10.73	28.77	49.58	3	8.04	1	2.68
Fort Bayard, N. Mex.....	361	905.82	8.30	23.00	28.31	3	8.31	2	5.54
Fort Apache, Ariz.....	355	842.25	5.12	14.43	24.33	5	14.09		
Jefferson Barracks, Mo.....	352	1,426.13	11.86	33.70	43.69	4	11.36	2	5.68
Fort Reno, Okla.....	344	1,075.56	8.71	25.32	35.45	3	8.72	2	5.81
Fort Sherman, Idaho.....	340	767.65	8.30	24.42	27.74	6	17.65	2	5.88
Fort Grant, Ariz.....	317	1,025.24	5.85	18.44	25.23	3	9.46		
Mean.....	356		8.23						
Summary.....	3,204	1,193.20	74.03	23.11	32.80	33	10.30	12	3.75

TABLE III.—*Military posts in each department, alphabetically arranged, with mean strength, and admissions for disease and injury, etc.—Continued*

DEPARTMENT OF THE COLORADO.

Name of station.	Mean strength.	Cases.			Admission rate per 1,000 of mean strength.	Average number of sick daily.	Constantly noneffective per 1,000 of mean strength.	Discharges for disability.	Deaths.	Altitude of station.	Temperature.			
		Disease.	Injury.	Total.							Mean.	Maximum.	Minimum.	Total precipitation.
										<i>Feet.</i>	<i>°</i>	<i>°</i>	<i>°</i>	<i>In.</i>
Apache, Fort, Ariz.....	355	174	125	299	842.25	8.64	24.33	5	...	5,200	53.7	97	5	14.93
Bayard, Fort, N. Mex.....	361	225	102	327	905.82	10.22	28.31	3	...	2,675	54.2	96	9	17.00
Denver headquarters, Colo.....	16	3	.....	3	187.50	.32	19.86	...	...	5,290	49.4	96	14	15.37
Douglas, Fort, Utah.....	523	774	126	900	1,720.84	22.33	42.70	6	...	3,492	50.2	98	2	16.74
DuChesne, Fort, Utah.....	115	106	28	134	1,165.22	4.96	43.09	...	...	5,000	42.7	98	24	11.43
Grant, Fort, Ariz.....	317	223	102	325	1,025.24	8.00	25.23	3	...	4,916	61.0	98	19	13.87
Huachuca, Fort, Ariz.....	295	377	132	509	1,725.42	14.86	50.37	10	...	2,510	60.3	98	15	16.68
Logan, Fort, Colo.....	620	652	221	873	1,408.06	25.25	40.73	9	...	2,450	49.4	90	14	15.37
San Carlos, Ariz.....	43	30	12	42	976.74	.66	15.36	...	...	2,456	63.8	109	20	7.00
Whipple Barracks, Ariz.....	161	119	38	157	975.16	8.50	52.80	6	...	2,531	51.7	97	8	21.88
Wingate, Fort, N. Mex.....	141	145	64	209	1,482.27	4.62	32.80	1	...	7,000	50.3	94	3	18.94
Field.....	140	101	54	155	1,107.14	1.72	12.25	...	...	.....	.....	.....	.....	.....
Total.....	3,087	2,929	1,004	3,933	1,274.05	110.07	35.66	43	11	.....	.....	.....	.....	.....

DEPARTMENT OF CALIFORNIA.

Alcatraz Island, Cal.....	135	71	25	96	711.11	3.33	24.66	.....	.....	135	55.1	92	38	16.40
Angel Island, Cal.....	230	127	22	149	647.83	7.52	32.72	1	...	150	55.1	92	38	16.40
Benicia Barracks, Cal.....	205	115	55	170	829.27	5.18	25.27	3	...	160	55.1	92	38	16.40
Mason, Fort, Cal.....	70	29	9	38	542.86	2.36	31.66	.....	.....	80	55.1	92	38	16.40
Presidio of San Francisco, Cal.....	745	441	220	661	887.25	19.44	26.10	3	5	72	55.1	92	38	16.40
San Diego Barracks, Cal.....	66	43	36	79	1,196.96	2.68	40.80	3	...	661	0	89	36	8.93
San Francisco headquarters, Cal.....	27	6	1	7	259.26	.18	6.59	.....	.....	55	1	92	38	16.40
Field.....	110	57	35	92	836.37	1.12	10.14	.....	.....	.....	.....	.....	.....	.....
Total.....	1,588	889	403	1,292	813.60	41.81	28.33	10	5	.....	.....	.....	.....	.....

DEPARTMENT OF THE COLUMBIA.

Boise Barracks, Idaho.....	123	54	34	88	715.45	2.65	21.56	1	2	2,765	50.9	107	5	10.98
Canby, Fort, Wash.....	74	23	22	45	608.11	1.11	14.96	.....	.....	850	4	85	26	75.15
Sherman, Fort, Idaho.....	340	206	55	261	767.65	9.43	27.74	6	2	2,140	46.8	96	4	33.35
Spokane, Fort, Wash.....	129	71	28	99	767.44	2.48	19.26	.....	...	1,140	48.2	100	3	23.80
Vancouver Barracks, Wash.....	560	327	122	449	801.79	12.82	22.90	5	2	50	53.1	95	22	43.01
Walla Walla, Fort, Wash.....	192	131	45	176	916.67	8.47	44.10	3	1	865	53.1	105	0	21.67
Field.....	34	11	10	21	617.65	.28	8.22	.....	1	.....	.....	.....	.....	.....
Total.....	1,452	823	316	1,139	784.44	37.25	25.65	15	9	.....	.....	.....	.....	.....

SUNDRY.

General hospital, Hot Springs, Ark.....	44	18	.....	18	409.09	25.63	.....	23	1	.....	64.2	108	10	54.85
At large.....	.....	.....	.....	.....	.....	.....	.....	22	4	.....	.....	.....	.....	.....
The Army.....	25,417	22,787	7,373	30,160	1,186.61	911.16	35.85	263	140	.....	.....	.....	.....	.....

TABLE IV.—General view of the results of disease and injury at each of the military stations, arranged in the order of their mean strength.

GROUP 1.—THIRTEEN STATIONS, GARRISONED BY 500 MEN OR MORE EACH.

Name of station.	Mean strength.	Admission rate per 1,000 of mean strength.	Constantly non-effective.			Discharges.		Deaths.	
			Daily average in hospital.	Ratio per 1,000 of mean strength.		Number.	Ratio per 1,000 of mean strength.	Number.	Ratio per 1,000 of mean strength.
				Cases in hospital.	All cases.				
Fort Leavenworth, Kans.....	798	1,251.88	24.39	30.57	43.78	3	3.76	3	3.76
Fort Riley, Kans.....	785	1,484.08	18.62	23.72	41.70	6	7.64	5	6.37
Presidio of San Francisco, Cal..	745	887.25	18.08	24.27	26.10	3	4.03	5	6.71
Fort Sheridan, Ill.....	739	903.92	16.02	21.68	28.05	4	5.41	5	6.77
Fort Sam Houston, Tex.....	645	1,238.76	16.94	26.26	33.37	6	9.30	5	7.75
Fort Logan, Colo.....	620	1,408.06	17.11	27.60	40.73	9	14.52	2	3.23
Vancouver Barracks, Wash.....	560	801.79	7.72	13.79	22.90	5	8.93	2	3.57
Fort Monroe, Va.....	551	1,333.94	12.87	23.36	42.80	2	3.63	4	7.26
Fort Douglas, Utah.....	523	1,720.84	17.09	32.68	42.70	6	11.47	3	5.74
Plattsburg Barracks, N. Y.....	522	1,049.81	10.30	19.74	28.11	6	11.49	3	5.75
Fort Crook, Nebr.....	519	1,134.87	16.82	32.42	40.91	4	7.71	1	1.93
Columbus Barracks, Ohio.....	517	1,088.97	16.67	32.24	37.66	5	9.67	5	9.67
Fort Niobrara, Nebr.....	513	865.50	11.62	22.65	26.69	2	3.90	4	7.80
Mean.....	618		15.71						
Summary.....	8,037	1,168.72	204.25	25.42	35.14	61	7.59	47	5.85

GROUP 2.—NINE STATIONS, GARRISONED BY 400 TO 500 MEN EACH.

Fort Assiniboine, Mont.....	488	891.39	11.13	22.82	29.37	4	8.20	3	6.15
Fort Snelling, Minn.....	488	1,010.25	13.82	28.31	41.70	7	14.34	1	2.05
Madison Barracks, N. Y.....	486	1,253.09	10.33	21.26	36.37	5	10.29	1	2.06
Fort Meade, S. Dak.....	475	1,669.47	12.36	26.03	38.64			5	10.53
Fort D. A. Russell, Wyo.....	460	1,547.83	12.82	27.88	42.79	1	2.17	3	6.52
Fort Thomas, Ky.....	459	1,246.19	19.41	42.29	52.17	5	10.89	2	4.36
Fort McPherson, Ga.....	458	1,281.66	12.65	27.63	45.06	5	10.92	5	10.92
Willels Point, N. Y.....	426	1,269.95	10.56	24.79	27.71	3	7.04	2	4.69
Fort Robinson, Nebr.....	404	1,497.53	11.23	27.80	47.27	4	9.90	4	9.90
Mean.....	460		12.70						
Summary.....	4,144	1,290.30	114.33	27.59	40.03	34	8.20	26	6.27

GROUP 3.—NINE STATIONS, GARRISONED BY 300 TO 400 MEN EACH.

Fort Sill, Okla.....	381	1,199.47	6.77	17.77	33.01	3	7.87	1	2.63
West Point, N. Y.....	381	1,236.22	8.39	22.03	26.70	3	7.87	2	5.25
Fort Clark, Tex.....	373	2,174.26	10.73	28.77	49.58	3	8.04	1	2.68
Fort Bayard, N. Mex.....	361	905.82	8.30	23.00	28.31	3	8.31	2	5.54
Fort Apache, Ariz.....	355	842.25	5.12	14.43	24.33	5	14.09		
Jefferson Barracks, Mo.....	352	1,426.13	11.86	33.70	43.69	4	11.36	2	5.68
Fort Reno, Okla.....	344	1,075.56	8.71	25.32	35.45	3	8.73	2	5.81
Fort Sherman, Idaho.....	340	767.65	8.30	24.42	27.74	6	17.65	2	5.88
Fort Grant, Ariz.....	317	1,025.24	5.85	18.44	25.23	3	9.46		
Mean.....	356		8.23						
Summary.....	3,204	1,193.20	74.03	23.11	32.80	33	10.30	12	8.75

TABLE V.—*Twenty posts having the highest admission rates for the year 1897; also their admission rates for the years 1892 to 1896, inclusive.*

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.				Admission rate per 1,000 of mean strength.				
		Admissions.	Discharges.	Deaths.	Constantly non-effective.	1896.	1895.	1894.	1893.	1892.
Fort McIntosh, Tex.....	128	2,312.50	7.81	7.81	52.14	1,436.97	1,463.28	1,235.29	1,218.18	1,442.95
Fort Clark, Tex.....	373	2,174.26	8.04	2.68	49.58	1,970.35	1,560.54	1,619.04	2,165.60	1,538.94
Fort Barrancas, Fla.....	130	2,000.00	15.38	23.08	77.34	1,507.46	1,105.88	1,152.67	1,883.33	1,986.67
Fort Wadsworth, N. Y.....	194	1,907.22	10.31	.....	37.17	885.57	758.45	1,059.78	1,204.55	1,108.57
Camp Eagle Pass, Tex.....	64	1,890.62	15.62	.....	54.58	1,926.47	1,424.24	2,213.11	2,196.43	2,113.21
Fort Myer, Va.....	281	1,818.50	24.91	10.68	51.65	2,250.00	2,800.00	2,167.33	2,034.75	1,618.64
St. Francis Barracks, Fla.....	144	1,777.78	6.94	20.83	40.41	1,141.03	929.49	1,855.17	1,767.44	1,967.48
Washington Barracks, D.C.....	295	1,759.32	13.56	3.39	47.48	2,250.71	2,137.74	1,794.30	2,027.87	1,981.93
Fort Brown, Tex.....	112	1,741.07	.....	.....	63.70	1,180.18	1,413.79	1,550.00	1,879.52	576.27
Rock Island Arsenal, Ill.....	75	1,733.33	.....	.....	38.72	1,242.42	772.73	812.50	1,184.62	1,292.31
Fort Huachuca, Ariz.....	295	1,725.42	33.90	6.78	50.37	1,498.02	1,020.00	747.51	1,308.22	899.37
Fort Douglas, Utah.....	523	1,720.84	11.47	5.74	42.70	982.28	849.24	1,251.08	1,187.50	1,014.43
Fort Slocum, N. Y.....	193	1,683.94	20.73	.....	36.92	1,680.41	2,103.45	1,326.08	2,283.76	2,115.32
Fort Adams, R. I.....	284	1,676.06	10.56	.....	51.68	943.86	1,003.46	1,021.66	1,216.22	1,129.03
Fort Meade, S. Dak.....	475	1,669.47	.....	10.53	38.64	1,000.00	854.39	1,543.86	1,500.00	1,556.90
Fort Keogh, Mont.....	294	1,615.65	27.21	6.80	59.67	982.52	806.72	1,266.67	1,633.99	1,264.25
Jackson Barracks, La.....	108	1,555.56	18.52	9.26	51.27	944.83	1,068.18	1,132.23	1,241.38	1,650.94
Fort D. A. Russell, Wyo.....	460	1,547.83	2.17	6.52	42.79	1,663.07	1,351.52	958.64	1,091.10	766.90
Fort Schuyler, N. Y.....	131	1,511.45	.....	.....	25.89	1,222.22	1,257.81	1,240.00	1,345.13	1,255.10
Fort Robinson, Nebr.....	404	1,497.53	9.90	9.90	47.27	1,002.64	1,214.80	1,119.20	1,285.15	1,272.21
The Army.....	25,417	1,186.61	9.62	5.11	35.85	1,110.39	1,110.22	1,089.73	1,289.04	1,270.42

TABLE VI.—*Twenty posts having the lowest admission rates for the year 1897; also their admission rates for the years 1892 to 1896, inclusive.*

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.				Admission rate per 1,000 of mean strength.				
		Admissions.	Discharges.	Deaths.	Constantly non-effective.	1896.	1895.	1894.	1893.	1892.
Fort Yellowstone, Wyo.....	132	280.30	.....	7.58	6.68	398.15	422.02	529.41	520.00	1,105.26
Fort Mason, Cal.....	70	542.86	.....	.....	33.66	684.93	676.47	373.13	741.94	689.66
Fort Porter, N. Y.....	139	546.15	.....	7.69	19.18	486.96	515.62	833.33	1,814.16	1,133.33
Sandy Hook proving ground, N. J.....	72	553.33	.....	.....	5.52	938.46	1,650.79	1,579.71	2,362.07	1,884.62
Fort Canby, Wash.....	74	608.11	.....	.....	14.96	734.04	936.00	548.67	698.11	1,292.45
Angel Island, Cal.....	230	647.83	4.35	.....	32.72	523.44	670.50	590.10	826.09	960.14
Alcatraz Island, Cal.....	135	711.11	.....	.....	24.66	477.61	461.54	692.98	694.91	1,025.64
Boise Barracks, Idaho.....	123	715.45	8.13	16.26	21.56	870.69	721.74	726.50	798.17	693.88
Fort Hamilton, N. Y.....	283	742.05	7.07	3.53	31.32	1,097.01	1,543.55	1,205.22	1,772.20	2,354.96
Fort Brady, Mich.....	255	760.78	7.84	.....	25.75	796.87	775.42	928.99	970.59	923.08
Fort Spokane, Wash.....	129	767.44	.....	7.75	19.26	790.42	883.98	808.82	659.57	518.52
Fort Sherman, Idaho.....	340	767.65	17.65	5.88	27.74	985.66	885.99	676.57	781.76	637.93
Fort Harrison, Mont.....	137	795.62	14.60	7.30	29.10	653.22	1,071.43	.....	.....	.....
Vancouver Barracks, Wash.....	560	801.79	8.93	3.57	22.90	818.66	655.59	471.40	518.18	727.27
Fort Yates, N. Dak.....	184	820.65	5.43	5.43	25.30	1,214.95	992.78	1,278.63	1,520.60	1,567.57
Benicia Barracks, Cal.....	205	829.27	14.63	.....	25.27	540.67	862.39	918.66	792.45	825.76
Fort Wayne, Mich.....	279	831.54	14.34	7.17	38.32	568.00	484.62	609.44	1,162.60	1,326.18
Fort Missoula, Mont.....	272	838.24	.....	7.35	30.39	628.68	578.75	552.63	773.87	603.17
Fort Apache, Ariz.....	355	842.25	14.09	.....	24.33	784.62	1,073.94	1,021.05	1,178.26	1,345.18
Fort Warren, Mass.....	133	849.62	.....	7.52	23.65	1,167.94	939.85	1,160.00	1,212.39	608.70
The Army.....	25,417	1,186.61	9.62	5.11	35.85	1,110.39	1,110.22	1,089.73	1,289.04	1,270.42

TABLE VII.—*Twenty posts having the highest noneffective rates for the year 1897; also their noneffective rates for the years 1892 to 1896, inclusive.*

Name of station.	Mean strength.	Constantly non-effective per 1,000 of mean strength.	Average sick daily.	Average days that each case was treated.	Constantly noneffective per 1,000 of mean strength.				
					1896.	1895.	1894.	1893.	1892.
Fort Barrancas, Fla.....	130	77.34	10.05	14.12	53.30	37.87	42.58	44.41	70.64
Fort Brown, Tex.....	112	63.70	7.13	13.35	47.23	70.69	59.54	60.90	38.91
Fort Keogh, Mont.....	294	59.67	17.54	13.48	38.43	27.97	36.13	52.11	37.46
Camp Eagle Pass, Tex.....	64	54.58	3.49	10.54	65.74	22.17	50.95	68.74	76.90
Whipple Barracks, Ariz.....	161	52.80	8.50	19.76	33.40	27.50	36.72	46.66	41.54
Fort Thomas, Ky.....	439	52.17	23.95	15.28	50.64	52.19	36.34	26.10	42.19
Fort McIntosh, Tex.....	128	52.14	6.67	8.23	63.67	64.05	50.04	65.62	68.91
Fort Adams, R. I.....	284	51.68	14.68	11.25	31.60	42.06	36.17	39.77	32.63
Fort Myer, Va.....	281	51.65	14.51	10.37	43.15	63.78	53.18	62.57	40.55
Jackson Barracks, La.....	108	51.27	5.54	12.03	25.40	31.38	36.79	42.51	57.51
Fort Huachuca, Ariz.....	205	50.37	14.86	10.65	38.79	18.43	27.55	38.63	24.64
Fort Clark, Tex.....	373	49.58	18.49	8.32	48.70	40.40	52.39	79.79	60.77
Washington Barracks, D. C.....	295	47.48	14.01	9.85	44.51	46.18	42.33	54.27	43.22
Fort Robinson, Nebr.....	404	47.27	19.10	11.52	27.82	26.95	26.30	26.95	27.99
Fort McPherson, Ga.....	458	45.06	20.64	12.83	40.86	25.17	21.87	54.17	58.04
Fort Ringgold, Tex.....	123	44.55	5.48	11.83	39.14	63.92	54.60	76.51	70.14
Fort Walla Walla, Wash.....	192	44.10	8.47	17.56	41.42	37.70	47.95	57.29	37.64
Fort Leavenworth, Kans.....	798	43.78	34.94	12.77	39.46	36.51	39.06	45.47	34.07
Jefferson Barracks, Mo.....	352	43.69	15.38	11.18	67.23	36.29	23.42	50.59	32.34
Fort DuChesne, Utah.....	115	43.00	4.96	13.50	31.03	26.21	30.60	28.77	32.14
The Army.....	25,417	35.85	911.16	11.03	33.97	33.89	34.49	40.15	39.60

TABLE VIII.—*Twenty posts having the lowest noneffective rates for the year 1897; also their noneffective rates for the years 1892 to 1896, inclusive.*

Name of station.	Mean strength.	Constantly non-effective per 1,000 of mean strength.	Average sick daily.	Average days that each case was treated.	Constantly noneffective per 1,000 of mean strength.				
					1896.	1895.	1894.	1893.	1892.
Sandy Hook proving ground, N. J.....	72	5.52	4.40	3.45	9.71	23.44	30.22	25.98	19.13
Fort Yellowstone, Wyo.....	132	6.68	8.88	8.70	9.59	12.19	9.86	20.77	23.62
Fort Canby, Wash.....	74	14.96	1.11	8.98	26.60	20.30	14.09	22.93	54.85
Fort Porter, N. Y.....	130	19.18	2.49	12.82	21.72	10.27	17.76	40.22	35.91
Fort Spokane, Wash.....	129	19.26	2.48	0.16	32.87	24.58	27.92	27.22	25.26
Fort Niagara, N. Y.....	201	20.88	4.20	7.30	39.16	29.38	19.47	17.38	29.37
Boise Barracks, Idaho.....	123	21.56	2.65	11.00	28.17	24.68	17.38	16.97	22.64
Vancouver Barracks, Wash.....	560	22.90	12.82	10.43	22.52	22.67	18.28	15.06	28.10
Fort Warren, Mass.....	133	23.65	3.15	10.16	30.35	38.38	48.00	42.16	22.14
Fort McHenry, Md.....	177	24.09	4.26	9.91	35.43	33.45	27.43	41.38	50.38
Fort Apache, Ariz.....	355	24.33	8.64	10.54	26.59	44.31	34.15	32.00	39.22
Alcatraz Island, Cal.....	135	24.66	3.33	12.66	24.10	26.11	26.94	18.37	40.35
Fort Grant, Ariz.....	317	25.23	8.00	8.98	36.52	31.93	31.91	50.65	47.61
Benicia Barracks, Cal.....	205	25.27	5.18	11.12	13.96	17.63	24.49	23.43	21.24
Fort Yates, N. Dak.....	184	25.30	4.65	11.25	44.50	28.20	43.49	44.03	64.66
Fort Brady, Mich.....	255	25.75	6.57	12.36	38.08	24.58	31.52	34.13	28.90
Fort Schuyler, N. Y.....	131	25.89	3.39	6.25	24.24	19.03	29.50	31.03	33.68
Fort Trumbull, Conn.....	66	25.90	1.71	9.04	18.32	12.84	11.00	19.52	36.93
Presidio of San Francisco, Cal.....	745	26.10	19.44	10.74	30.15	37.55	43.35	39.17	35.48
Fort Niobrara, Nebr.....	513	26.69	13.69	11.25	34.17	39.80	32.35	40.22	89.50
The Army.....	25,417	35.85	911.16	11.03	33.97	33.89	34.49	40.15	39.60

TABLE IX.—Twenty posts having the highest admission rates for disease, excluding venereal diseases, vaccinia, and alcoholism; also their ratios for deaths, discharges, and constant noneffectiveness, and the corresponding average rates for the Army, year 1897.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly non-effective.
Fort Clark, Tex.....	373	1,549.60	8.04	2.68	28.04
Rock Island Arsenal, Ill.....	75	1,466.67	.....	.....	24.40
Washington Barracks, D. C.....	295	1,406.78	10.17	3.39	29.85
Fort McIntosh, Tex.....	128	1,398.44	.....	.....	19.30
St. Francis Barracks, Fla.....	144	1,284.73	6.94	13.89	29.37
Fort Myer, Va.....	281	1,266.89	17.79	7.12	29.09
Camp Eagle Pass, Tex.....	64	1,265.63	15.62	.....	23.08
Fort Wadsworth, N. Y.....	194	1,221.64	10.31	.....	21.34
Fort Barrancas, Fla.....	130	1,215.38	7.60	23.08	51.48
Fort Douglas, Utah.....	523	1,198.83	9.56	1.91	21.80
Fort Slocum, N. Y.....	193	1,170.99	15.55	.....	25.63
Fort Keogh, Mont.....	294	1,159.87	27.21	.....	41.11
Fort Meade, S. Dak.....	475	1,143.16	.....	6.82	22.30
Fort Huachuca, Ariz.....	295	1,115.25	16.95	6.78	27.35
Fort Robinson, Nebr.....	404	1,054.45	7.42	7.42	26.59
Fort Brown, Tex.....	112	1,035.72	.....	.....	28.09
Fort Adams, R. I.....	284	1,017.60	7.04	.....	26.95
Jackson Barracks, La.....	108	1,009.25	18.52	9.26	23.59
Fort Snuyler, N. Y.....	131	1,000.01	.....	.....	14.56
Watervliet Arsenal, N. Y.....	59	983.05	.....	16.95	17.01
The Army.....	25,417	755.79	7.56	3.06	20.07

TABLE X.—Twenty posts having the highest noneffective rates for disease, excluding venereal diseases, vaccinia, and alcoholism; also the average number sick daily, the average duration of each case, and the corresponding average rates of the Army, year 1897.

Name of station.	Mean strength.	Constantly noneffective per 1,000 of mean strength.	Average number of sick daily.	Average number of days each case was treated.
Fort Barrancas, Fla.....	130	51.48	6.69	15.46
Fort Keogh, Mont.....	294	41.11	12.88	12.94
Whipple Barracks, Ariz.....	161	36.72	5.91	24.52
Washington Barracks, D. C.....	295	29.85	8.82	7.74
St. Francis Barracks, Fla.....	144	29.37	4.23	8.35
Fort Myer, Va.....	281	29.09	8.18	8.38
Fort Brown, Tex.....	112	28.09	3.15	9.90
Fort Clark, Tex.....	373	28.04	13.19	12.74
Fort DuChesne, Utah.....	115	27.84	3.20	12.18
Fort Custer, Mont.....	294	27.57	8.11	17.51
Fort Huachuca, Ariz.....	295	27.35	8.07	8.95
Fort Thomas, Ky.....	459	26.62	12.22	13.08
Fort Robinson, Nebr.....	404	26.59	10.75	9.21
Fort Walla Walla, Wash.....	192	26.44	5.08	17.00
Fort Adams, R. I.....	284	26.36	7.48	9.45
Fort Monroe, Va.....	551	25.90	14.27	10.30
Fort Slocum, N. Y.....	193	25.53	4.93	7.96
Rock Island Arsenal, Ill.....	75	24.40	1.83	6.07
Fort Snelling, Minn.....	488	23.63	11.53	14.51
Jackson Barracks, La.....	108	23.59	2.55	8.53
The Army.....	25,417	20.07	510.91	9.71

XI.—The military posts in each department, showing the rates of admission, death, discharge, and constant noneffectiveness for disease, excluding venereal diseases, vaccinia, and alcoholism, year 1897.

DEPARTMENT OF THE EAST.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly non-effective.
Fort Washington, Md.	30	5,166.66			67.04
Washington Barracks, D. C.	295	1,406.78	10.17	3.39	29.85
St. Francis Barracks, Fla.	144	1,284.73	6.94	13.89	29.37
Fort Myer, Va.	281	1,266.89	17.79	7.12	29.09
Fort Wadsworth, N. Y.	194	1,221.64	10.31		21.34
Fort Barrancas, Fla.	130	1,215.38	7.69	23.08	51.48
Fort Slocum, N. Y.	193	1,170.99	15.55		25.58
Springfield Armory, Mass.	30	1,051.28			18.83
Fort Adama, R. I.	284	1,017.60	7.04		26.26
Jackson Barracks, La.	108	1,009.25	18.52	9.26	23.59
Fort Schuyler, N. Y.	131	1,000.01			14.56
Columbia Arsenal, Tenn.	20	1,000.00		50.00	12.46
Watervliet Arsenal, N. Y.	59	983.05	21.74	16.95	17.01
Frankford Arsenal, Pa.	46	956.52	21.74		31.21
Fort Monroe, Va.	551	918.31	1.81	5.44	25.90
West Point, N. Y.	381	902.88	7.87	2.63	17.35
Willels Point, N. Y.	426	845.06	7.04		17.83
Fort McPherson, Ga.	458	759.83	6.55	8.74	23.10
Fort Trumbull, Conn.	66	757.58	15.15		16.15
Fort Niagara, N. Y.	201	751.23	4.98		13.97
Fort Thomas, Ky.	459	742.92	8.71	4.36	26.62
Madison Barracks, N. Y.	486	705.76	10.29		19.72
Fort Columbus, N. Y.	247	688.25	8.10		19.20
Key West Barracks, Fla.	127	661.42	7.87		23.24
Columbus Barracks, Ohio	517	659.57	7.74	5.80	23.65
Fort McHenry, Md.	177	649.71			13.46
Fort Ethan Allen, Vt.	234	649.56			17.87
Augusta Arsenal, Ga.	28	642.84	71.43		47.16
Plattsburg Barracks, N. Y.	522	636.02	9.57	1.92	16.53
Watertown Arsenal, Mass.	41	634.15			20.05
Fort Preble, Me.	70	542.85			16.01
Kennebec Arsenal, Me.	16	500.00			4.52
Allegheny Arsenal, Pa.	30	433.33		66.67	6.76
Sandy Hook proving ground, N. J.	72	416.66			2.67
Fort Hamilton, N. Y.	283	406.36		3.53	19.16
Fort Warren, Mass.	133	360.90			9.25
Fort Porter, N. Y.	130	253.85			2.64
New York attending surgeon, N. Y.	21	238.10			2.87
Sullivan's Island, S. C.	14	214.28			1.76
Boston attending surgeon, Mass.	7	142.86			.39
Philadelphia attending surgeon, Pa.	22	90.91	45.45		16.06
Baltimore attending surgeon, Md.	7				
Field	338	721.89			7.96
Total	8,018	828.76	6.98	3.49	20.87

DEPARTMENT OF THE MISSOURI.

Indianapolis Arsenal, Ind.	25	2,120.00			20.06
Rock Island Arsenal, Ill.	75	1,466.67			24.40
Fort Sill, Okla.	381	908.14	5.25	2.62	23.34
Fort Logan H. Roots, Ark.	134	902.99	7.46		16.04
Jefferson Barracks, Mo.	352	900.57	8.52	2.84	23.51
Fort Leavenworth, Kans.	798	838.39	2.51	3.76	19.90
Fort Riley, Kans.	785	808.91	5.09	5.09	15.46
Fort Sheridan, Ill.	739	562.93	5.41	2.71	14.21
Fort Reno, Okla.	344	526.15	2.91	5.81	15.20
Fort Wayne, Mich.	279	476.70	7.17	7.17	20.90
Fort Brady, Mich.	255	423.52	7.84		15.48
Chicago headquarters, Ill.	26	88.46			1.17
Field	148	929.19			14.56
Total	4,341	743.83	4.84	3.46	17.88

XI.—The military posts in each department, showing the rates of admission, death, discharge, and constant noneffectiveness for disease, etc.—Continued.

DEPARTMENT OF DAKOTA.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly non-effective.
Fort Keogh, Mont.	294	1,159.87	27.21	.....	41.11
Fort Snelling, Minn.	488	594.27	10.24	.....	23.63
Fort Custer, Mont.	294	571.42	6.80	3.40	27.57
Fort Missoula, Mont.	272	533.10	.....	3.68	15.96
Fort Assiniboine, Mont.	488	502.04	4.10	2.05	13.03
Fort Harrison, Mont.	137	474.44	14.60	7.30	17.76
Fort Yates, N. Dak.	184	423.91	5.43	.....	14.23
Fort Yellowstone, Wyo.	132	159.09	.....	.....	3.82
St. Paul headquarters, Minn.	24	125.00	.....	.....	12.21
Field	200	655.00	.....	.....	8.94
Total	2,513	591.72	7.96	1.59	19.92

DEPARTMENT OF THE PLATTE.

Fort Meade, S. Dak.	475	1,143.16	.....	6.32	22.30
Fort Robinson, Nebr.	404	1,054.45	7.42	7.42	26.59
Fort D. A. Russell, Wyo.	460	928.27	.....	2.17	20.76
Omaha headquarters, Nebr.	12	750.00	.....	.....	12.56
Fort Crook, Nebr.	519	714.84	5.78	1.93	19.36
Fort Washakie, Wyo.	119	697.48	.....	.....	17.58
Fort Niobrara, Nebr.	513	516.57	8.90	5.85	14.99
Field	110	481.82	.....	.....	3.34
Total	2,612	833.46	8.06	4.21	19.61

DEPARTMENT OF TEXAS.

Fort Clark, Tex.	373	1,549.60	8.04	2.68	28.04
Fort McIntosh, Tex.	128	1,398.44	.....	.....	19.30
Camp Eagle Pass, Tex.	64	1,265.63	15.62	.....	24.08
Fort Brown, Tex.	112	1,035.72	.....	.....	28.09
Fort Sam Houston, Tex.	645	931.78	9.30	6.20	22.09
Fort Ringgold, Tex.	123	739.84	.....	8.13	17.26
Fort Bliss, Tex.	211	573.46	.....	4.74	16.19
San Antonio headquarters, Tex.	14	214.29	.....	.....	6.07
Field	92	663.04	.....	.....	6.61
Total	1,762	1,039.16	5.68	3.97	21.58

DEPARTMENT OF THE COLORADO.

Fort Douglas, Utah	523	1,198.83	9.56	1.91	21.80
Fort Huachuca, Ariz.	295	1,115.25	16.95	6.78	27.35
Fort Wingate, N. Mex.	141	865.25	7.09	.....	15.52
Fort DuChesne, Utah	115	834.78	.....	.....	27.84
Fort Logan, Colo.	620	811.29	12.91	.....	20.22
Fort Grant, Ariz.	317	618.29	8.15	.....	14.80
San Carlos, Ariz.	43	581.39	.....	.....	8.28
Whipple Barracks, Ariz.	161	546.59	37.27	12.42	36.72
Fort Bayard, N. Mex.	361	540.18	5.54	2.77	17.59
Fort Apache, Ariz.	355	445.07	8.46	.....	10.82
Denver headquarters, Colo.	16	187.50	.....	.....	4.62
Field	140	678.58	.....	.....	5.96
Total	3,087	789.43	10.04	1.94	19.26

XI.—*The military posts in each department, showing the rates of admission, death, discharge, and constant noneffectiveness for disease, etc.*—Continued.

DEPARTMENT OF CALIFORNIA.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly non-effective.
San Diego Barracks, Cal.....	60	530.31	45.45	.....	22.96
Angel Island, Cal.....	230	478.25	4.35	.....	18.89
Benicia Barracks, Cal.....	205	468.30	14.63	.....	14.06
Presidio of San Francisco, Cal.....	745	467.12	1.34	5.37	11.53
Alcatraz Island, Cal.....	135	429.64	.....	.....	9.78
Fort Mason, Cal.....	70	271.43	.....	.....	19.10
San Francisco headquarters, Cal.....	27	222.22	.....	.....	5.78
Field.....	110	454.56	.....	.....	4.59
Total.....	1,588	454.65	5.04	2.52	13.08

DEPARTMENT OF THE COLUMBIA.

Fort Walla Walla, Wash.....	102	567.69	10.42	.....	20.44
Vancouver Barracks, Wash.....	560	480.36	7.14	3.57	16.45
Fort Sherman, Idaho.....	340	455.89	11.77	2.94	14.48
Boise Barracks, Idaho.....	123	439.03	.....	8.13	11.82
Fort Spokane, Wash.....	129	403.11	.....	.....	8.06
Fort Canby, Wash.....	74	283.78	.....	.....	8.33
Field.....	34	235.30	.....	29.41	4.36
Total.....	1,452	460.05	6.89	3.44	15.43

GENERAL HOSPITAL AND TOTAL FOR THE ARMY.

General hospital, Hot Springs, Ark.....	44	318.18	.....	.....	.....
Total for the Army.....	25,417	755.79	7.56	3.06	20.07

TABLE XII.—*Ratios of admission to sick report, discharge, death, and constantly non-effective of the Army and of the troops in the several departments for the year 1897, as compared with the ratios for the Army for 1896 and for the decade 1886-1895.*

For the decade 1886-1895.	White.				Colored.				Indian.				Total.											
	A. G., 24,301.				S. G., 22,071.				A. G., 2,379.				S. G., 2,188.				A. G., 26,907.				S. G., 24,472.			
	Admissions.	Discharges.	Deaths.	Constantly non-effective. (a)	Admissions.	Discharges.	Deaths.	Constantly non-effective. (a)	Admissions. (b)	Discharges. (b)	Deaths. (b)	Constantly non-effective. (b)	Admissions.	Discharges.	Deaths.	Constantly non-effective. (a)								
SPECIAL.																								
Vaccinia.....	33	76	0.004	1.06	26	24	0.50	0.76	106	25	4.14	33	72	0.004	1.06	33	72	0.004	1.06					
Typhoid fever.....	5	94	0.01	0.64	2	10	0.50	0.29	32	47	0.02	5	55	0.01	0.84	5	55	0.01	0.84					
Malarial infections.....	96	20	0.09	1.4	64	50	0.04	1.74	32	91	0.47	92	82	0.08	2.40	92	82	0.08	2.40					
Rheumatic fever.....	5	11	0.07	0.2	5	76	0.04	0.53	4	23	0.58	5	16	0.07	0.58	5	16	0.07	0.58					
Ruberculosis of the lungs.....	2	93	1.52	44	3	93	1.85	97	25	39	7.04	3	21	1.63	7.75	3	21	1.63	7.75					
Tuberculosis.....	17	45	1.98	0.2	20	98	3.36	2.02	15	51	2.64	17	75	2.11	2.24	17	75	2.11	2.24					
Syphilis.....	38	97	2.6	1.68	32	41	0.04	1.52	63	00	3.77	38	60	2.4	2.24	38	60	2.4	2.24					
Gonorrhea.....	75	89	2.30	2.30	78	48	3.40	5.21	98	26	2.64	75	89	2.40	5.26	75	89	2.40	5.26					
All venereal diseases.....	42	37	0.7	2.47	4	80	0.04	0.05	4	70	0.07	42	37	0.7	4.43	42	37	0.7	4.43					
Alcoholism and direct results.....	24	69	1.6	0.62	36	94	0.04	0.57	15	05	0.17	24	69	1.4	0.62	24	69	1.4	0.62					
Neuritis.....	41	35	0.04	0.04	54	49	0.04	0.73	29	62	0.11	41	35	0.04	0.66	41	35	0.04	0.66					
Colic and constipation.....	32	10	0.02	0.13	49	18	0.04	0.31	31	50	0.34	32	42	0.02	0.30	32	42	0.02	0.30					
Diarrheal diseases.....	115	68	2.2	1.3	99	75	1.7	1.14	45	61	0.55	115	68	2.1	1.32	115	68	2.1	1.32					
Diseases of the heart.....	5	79	1.36	0.42	4	96	1.18	0.30	2	35	0.88	5	79	1.34	0.51	5	79	1.34	0.51					
Coryza.....	33	56	0.23	0.29	69	26	0.17	1.20	56	80	0.82	33	56	0.23	0.29	33	56	0.23	0.29					
Bronchitis.....	67	94	0.23	1.37	69	26	0.17	1.20	56	80	0.82	67	97	0.22	1.35	67	97	0.22	1.35					
Pneumonia.....	3	88	0.06	0.66	6	90	0.08	1.51	60	10	0.88	3	88	0.06	0.74	3	88	0.06	0.74					
Diseases of the kidneys.....	1	72	0.20	0.23	2	23	0.34	0.56	50	78	1.32	1	72	0.20	0.21	1	72	0.20	0.21					
Rheumatism and myalgia.....	73	28	1.59	0.35	116	33	2.02	4.56	42	31	0.21	73	28	1.63	0.22	73	28	1.63	0.22					
Boils and abscesses.....	43	74	0.03	0.99	26	51	0.04	0.67	42	44	0.47	43	74	0.03	0.94	43	74	0.03	0.94					
Conjunctivitis.....	11	86	0.06	0.32	14	49	0.21	1.04	62	06	0.44	11	86	0.06	0.82	11	86	0.06	0.82					
All diseases of the eye.....	17	95	0.08	0.78	26	74	0.13	1.04	62	06	0.44	17	95	0.08	0.82	17	95	0.08	0.82					
All diseases of the ear.....	7	67	0.54	0.34	145	86	0.21	3.36	198	82	0.52	7	67	0.54	0.33	7	67	0.54	0.33					
Contusions and sprains.....	130	04	0.23	0.33	145	86	0.21	1.16	8	46	0.44	130	04	0.23	0.52	130	04	0.23	0.52					
Dislocations.....	2	57	0.11	0.04	1	87	0.13	0.11	6	11	1.76	2	57	0.11	0.04	2	57	0.11	0.04					
Fractures, not gunshot.....	6	99	0.52	1.20	5	12	0.08	0.88	91	20	1.76	6	99	0.52	1.17	6	99	0.52	1.17					
Fractures, gunshot.....	50	21	0.20	1.48	68	07	0.21	1.99	91	20	1.76	50	21	0.20	1.53	50	21	0.20	1.53					
Wounds, not gunshot.....	3	30	0.64	0.67	7	27	0.80	1.60	7	03	4.84	3	30	0.66	0.61	3	30	0.66	0.61					
Wounds, gunshot.....	GROUPED.																							
Infectious diseases, general and local.....	302	66	4.15	13.18	276	73	5.76	11.55	350	26	15.41	302	66	4.39	17.45	302	66	4.39	17.45					
Diseases of nutrition, general.....	2	55	0.59	0.23	2	10	0.38	0.18	1	41	0.44	2	55	0.56	0.22	2	55	0.56	0.22					

Diseases of the nervous system.....	96.67	8.12	.79	2.32	77.07	2.14	.46	1.57	41.38	1.32	.44	.68	94.44	3.02	.76	2.24
Diseases of the digestive system.....	278.10	.75	.65	4.40	300.59	.76	.38	4.08	180.54	.....	.....	2.57	279.26	.75	.62	4.35
Diseases of the circulatory system.....	7.14	1.71	.51	.60	5.30	1.26	.50	3.36	2.35	.88	.44	.16	6.93	1.66	.51	.66
Diseases of the respiratory organs.....	113.00	.58	.78	2.49	130.55	.34	1.81	2.57	92.15	1.32	.88	2.46	114.30	.56	.87	2.50
Diseases of the genito-urinary system.....	11.33	.81	.24	.85	14.49	.97	.34	.93	7.99	.44	.....	.21	11.58	.82	.25	.85
Diseases of the lymphatic system and duct- less glands.....	5.35	.07	.004	.44	6.95	.....	.....	.47	11.28	.....	.....	.93	5.54	.06	.004	.45
Diseases of the muscles, bones, and joints.....	79.16	2.67	.01	3.74	121.41	3.24	.04	4.89	53.60	1.76	.....	1.38	82.70	2.71	.01	3.83
Diseases of the integument and subcutane- ous connective tissue.....	79.47	.23	.02	2.11	50.47	.25	.08	1.58	71.93	.....	.....	2.19	76.81	.23	.02	2.06
Diseases of the organs of special sense.....	27.53	1.65	.01	1.27	31.45	1.39	.....	1.26	72.40	.44	.44	2.19	28.27	1.62	.01	1.28
Unclassified.....	2.79	.....	.004	.07	5.21	.....	.....	.08	2.62	.....	.....	.01	3.00	.....	.004	.07
General injuries.....	3.25	.02	1.02	.08	1.87	.54	.42	.04	.....	.....	.44	.....	3.10	.03	.96	.07
Injuries to special parts.....	245.13	3.36	1.26	8.47	289.26	3.45	1.98	9.35	302.30	2.64	6.60	9.76	249.57	8.36	1.37	8.57
Total for diseases.....	1,005.77	16.34	4.84	31.80	1,022.31	16.48	6.05	29.53	888.11	21.57	9.68	30.27	1,006.22	16.39	4.99	31.62
Total for injuries.....	248.38	3.39	2.28	8.54	291.13	3.49	2.40	9.39	302.30	2.64	7.04	9.76	252.07	8.89	2.33	8.64
Total for all causes.....	1,254.15	19.72	7.12	40.34	1,313.43	19.97	8.45	38.92	1,190.41	24.21	16.72	40.03	1,258.29	19.78	7.32	40.26

a For 1887-1890, nine years of decade.

b For 1891-1894, four years of decade.

TABLE XII.—*Ratios of admission to sick report, discharge, death, and constantly noneffective, etc.—Continued.*

Causes of admission to sick report.	White.				Colored.				Total.			
	For the year 1896.		S. G., 24,977.		S. G., 23,014.		A. G., 2,206.		S. G., 2,105.		A. G., 27,183.	
	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.
SPECIAL.												
Vaccinia.....	26.03			0.64	7.60			0.16	24.49			0.00
Typhoid fever.....	6.04	0.68		.88	4.28			.58	5.89		0.63	.85
Malarial infections.....	89.16	0.04	0.04	1.76	16.63			.49	83.08	0.04	0.04	1.65
Rheumatic fever.....	4.26	.04		.43	1.90			.27	4.06	0.04		.42
Tuberculosis of the lungs.....	1.52	1.08	.20	1.28	2.38		8.17	.69	1.59	1.25	.22	.39
Syphilis.....	11.56			1.28	4.75			.38	10.98			1.21
Gonorrhea.....	51.71			3.13	35.63			1.84	50.36			3.02
All venereal diseases.....	80.04		.04	5.46	56.53			3.18	78.08		.04	5.26
Alcoholism and direct results.....	31.20		.28	.53	6.70			.17	29.06		.26	.49
Neuralgia.....	14.73	.08		.31	19.00			.04	15.09	.07		.30
Tonsillitis.....	39.37			.63	55.58			.78	40.73			.65
Colic and constipation.....	26.33			.23	31.35			.27	26.75			.23
Diarrheal diseases.....	82.86	.12		.78	48.93			.34	80.02	.11		.74
Diseases of the heart.....	3.95	.96	.40	.53	2.38			1.36	3.82	.88	.48	.51
Coryza.....	13.03			.14	8.08			.07	12.62			.13
Bronchitis.....	66.43	.08	.04	1.06	53.68			.82	65.37	.07	.04	1.04
Pneumonia.....	2.48		.36	.22	4.28			.41	2.63		.33	.24
Diseases of the kidneys.....	1.78	.16	.28	.22	1.48			.12	1.87	.15	.29	.21
Rheumatism and myalgia.....	58.01	.96	.04	2.51	71.26		1.36	.65	59.68	.99	.04	2.50
Boils and abscesses.....	44.06			.82	19.48			.30	42.00			.80
Conjunctivitis.....	8.56			.19	13.78			.30	9.00			.56
All diseases of the eye.....	14.21	.44		.55	22.80		.91	.67	14.83	.48		.37
All diseases of the ear.....	6.08		.48	.28	3.33		.45	.13	5.85	.48		.27
Contusions and sprains.....	149.04	.08	.04	3.43	124.47			2.11	146.98	.07	.04	3.32
Dislocations.....	3.82		.21	.95				.06	3.58			.20
Fractures, not gunshot.....	7.73	.32	.24	1.29	7.13			.45	7.68	.28	.26	1.29
Wounds, not gunshot.....	49.66	.20	.04	1.35	47.03		.45	1.43	49.45	.22	.04	1.36
Wounds, gunshot.....	2.09	.40	.44	.40	2.38			.08	2.11	.37	.52	.37
GROUPED.												
Infectious diseases, general and local.....	275.70	1.32	1.32	11.40	158.24		4.08	7.06	265.85	1.55	1.29	11.04
Local infections (also entered under diseases of organs).....	164.90	.36	.48	3.58	136.82			.45	162.55	.33	.52	3.49
Diseases of nutrition, general.....	2.69	.40	.12	.25	1.43		.91	.06	2.59	.44	.11	.24
Diseases of the nervous system.....	61.22	1.48	.73	1.94	34.21		.45	1.17	58.96	1.40	.74	1.68

Diseases of the digestive system.....	235.12	.44	.36	3.44	208.55	.45	.91	8.11	282.89	.44	.40	3.41
Diseases of the circulatory system.....	6.13	1.16	.48	.60	3.33	.....	1.36	.31	4.98	1.07	.55	.58
Diseases of the respiratory organs.....	87.60	.40	.40	1.76	70.78	.....	.....	1.41	86.19	.37	.37	1.73
Diseases of the genito-urinary system.....	8.69	.36	.32	.65	8.55	.....	.45	.66	8.68	.33	.33	.65
Diseases of the lymphatic system and ductless glands.....	3.30	.04	.....	.27	1.43	.....	.....	.12	3.15	.04	.....	.26
Diseases of the muscles, bones, and joints.....	64.44	1.48	.04	2.99	77.41	1.81	.....	2.45	65.53	1.51	.04	2.66
Diseases of the integument and subcutaneous connective tissue.....	80.60	.04	.....	1.85	34.68	.....	.....	1.00	76.76	.04	.....	1.78
Diseases of the organs of special sense.....	22.07	.92	.....	.95	28.03	1.36	.....	.85	22.57	.96	.....	.94
Unclassified.....	2.48	.....	.....	.05	2.85	.....	.....	.16	2.51	.....	.....	.06
General injuries.....	7.04	.....	.60	.09	4.28	.....	.91	.06	6.81	.....	.63	.09
Injuries to special parts.....	276.40	2.08	.92	8.77	235.16	1.36	1.81	7.33	272.94	2.02	.99	8.65
Total for diseases.....	849.05	8.05	3.76	25.87	629.45	9.07	4.53	18.35	830.65	8.13	3.82	25.23
Total for injuries.....	283.44	2.08	1.52	8.85	239.43	1.36	2.72	7.40	279.74	2.02	1.62	8.74
Total for all causes.....	1,132.49	10.13	5.28	34.72	868.88	10.43	7.25	25.75	1,110.39	10.15	5.44	33.97

TABLE XII.—*Ratios of admission to sick report, discharge, death, and constantly noneffective, etc.—Continued.*

For the year 1897.	White.				Colored.				Total.			
	A. G., 25,165. S. G., 23,253.				A. G., 2,209. S. G., 2,164.				A. G., 27,374. S. G., 25,417.			
	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.
SPECIAL.												
Vaccinia.....	23.60	.....	.....	0.64	24.95	.....	.....	0.45	23.29	.....	.....	0.62
Typhoid fever.....	5.55	.....	0.28	1.88	13.86	.....	0.91	1.70	6.26	.....	0.33	1.95
Malarial infections.....	85.79	0.04	.....	1.78	4.62	.....	.....	12	78.88	0.04	.....	1.63
Rheumatic fever.....	4.04	.....	.....	4.5	7.96	.....	.....	75	4.37	.....	.....	4.47
Tuberculosis of the lungs.....	1.84	1.15	.....	1.59	2.31	0.91	0.91	1.99	1.97	1.13	.....	1.59
Syphilis.....	11.01	.....	.....	1.13	23.11	.....	.....	6.60	12.04	.....	.....	1.20
Gonorrhea.....	51.99	.....	.....	3.20	53.14	.....	.....	2.67	52.09	.....	.....	3.15
All venereal diseases.....	81.80	.....	.....	5.53	114.60	.....	.....	6.83	84.59	.....	.....	6.65
Alcoholism and direct results.....	30.02	.....	0.08	4.3	4.62	.....	.....	0.3	27.96	.....	0.07	0.39
Epilepsy.....	16.30	.....	.....	3.4	14.79	.....	.....	1.15	16.17	.....	.....	1.33
Tonsillitis.....	41.11	.....	.....	6.3	44.21	.....	.....	6.7	41.55	.....	.....	6.3
Colic and constipation.....	30.32	.....	.....	3.1	61.46	.....	.....	3.8	32.97	.....	.....	3.1
Diarrheal diseases.....	75.78	.....	.....	7.5	52.22	.....	.....	3.3	73.77	.....	.....	7.1
Diseases of the heart.....	3.27	.....	.....	3.1	1.85	.....	.....	0.7	3.15	.....	.....	0.7
Dyspepsia.....	9.03	.....	.....	0.8	8.78	.....	.....	0.8	9.01	.....	.....	0.8
Bronchitis.....	55.99	.....	.....	9.9	99.81	.....	.....	8.7	59.73	.....	.....	9.8
Pneumonia.....	2.92	.....	.....	3.2	6.01	.....	.....	8.0	2.19	.....	.....	3.5
Diseases of the kidneys.....	2.11	.....	.....	0.8	2.94	.....	.....	2.8	2.09	.....	.....	3.0
Rheumatism and myalgia.....	20	.....	.....	3.0	1.85	.....	.....	2.3	2.08	.....	.....	2.6
Rheumatism and myalgia.....	61.80	.....	.....	2.55	100.74	.....	.....	3.46	65.12	.....	.....	2.63
Hells and abscesses.....	491	.....	.....	91	20.79	.....	.....	4.3	42.03	.....	.....	8.7
Conjunctivitis.....	9.76	.....	.....	1.9	16.17	.....	.....	2.3	10.31	.....	.....	1.9
All diseases of the eye.....	15.09	.....	.....	5.1	29.11	.....	.....	1.05	16.29	.....	.....	5.6
All diseases of the ear.....	7.18	.....	.....	3.0	1.39	.....	.....	0.8	6.69	.....	.....	2.8
Contusions and sprains.....	152.58	.....	.....	3.67	138.64	.....	.....	3.12	151.40	.....	.....	2.8
Malocclusions.....	3.44	.....	.....	1.9	2.77	.....	.....	1.1	3.28	.....	.....	1.9
Fractures, not gunshot.....	8.13	.....	.....	1.18	7.86	.....	.....	1.30	8.10	.....	.....	1.19
Fractures, not gunshot.....	49.24	.....	.....	1.31	54.53	.....	.....	1.59	49.69	.....	.....	1.33
Wounds, not gunshot.....	2.24	.....	.....	0.8	4.63	.....	.....	3.17	2.44	.....	.....	0.8
Wounds, gunshot.....	2.24	.....	.....	0.8	4.63	.....	.....	3.17	2.44	.....	.....	0.8
GROUPED.												
Infectious diseases, general and local.....	338.17	1.27	1.31	12.51	314.28	1.36	1.81	13.50	326.99	1.28	1.35	12.59
Local infections (also entered under diseases of organs).....	156.84	.....	.....	8.60	191.31	.....	.....	3.31	159.73	.....	.....	3.37
Diseases of nutrition, general.....	2.19	.....	.....	0.30	4.46	.....	.....	0.6	2.05	.....	.....	0.57
Diseases of the nervous system.....	59.68	1.75	.....	1.69	27.27	2.28	.....	0.98	56.64	1.79	.....	1.63

Diseases of the digestive system.....	240.32	.60	.56	3.75	284.19	.....	.45	3.79	244.05	.55	3.75
Diseases of the circulatory system.....	4.82	.99	.36	.44	8.23	.45	.45	.08	4.68	.95	.41
Diseases of the respiratory organs.....	78.41	.40	.24	1.61	124.30	.45	.....	1.88	77.74	.40	1.64
Diseases of the genito-urinary system.....	9.12	.48	.24	.78	16.64	.....	.....	1.03	9.76	.44	.80
Diseases of the lymphatic system and ductless glands.....	2.28	.....	.04	.17	8.23	.....	.....	.13	2.36	.....	.17
Diseases of the muscles, bones, and joints.....	68.77	1.27	.....	2.74	112.74	1.81	.....	4.06	72.52	1.31	2.85
Diseases of the integument and subcutaneous connective tissue.....	75.60	.....	.....	1.78	88.82	.45	.....	.81	72.55	.....	1.70
Diseases of the organs of special sense.....	23.78	.60	.09	.88	31.88	.....	.....	1.28	24.47	.58	.92
Unclassified.....	2.54	.08	.04	.09	1.39	.....	.....	.03	2.44	.07	.09
General injuries.....	8.94	.....	1.11	.18	5.54	.....	.....	.16	8.66	.....	.18
Injuries to special parts.....	281.13	1.95	.76	8.89	284.66	1.81	3.17	9.47	281.42	1.94	8.94
Total for diseases.....	890.77	7.59	3.18	26.65	958.41	7.70	2.72	27.61	896.53	7.60	26.73
Total for injuries.....	290.07	2.03	1.87	9.07	290.20	1.81	3.17	9.63	290.06	2.01	9.12
Total for all causes.....	1,180.84	9.62	5.05	35.72	1,248.61	9.51	5.89	37.24	1,186.61	9.61	35.85

TABLE XII.—*Ratios of admission to sick report, discharge, death, and constantly noneffective, etc.—Continued.*

	Department of the East.				Department of the Missouri.				Department of Dakota.				Department of the Platte.			
	8,018				4,341				2,513				2,612			
Mean strength.....	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.	Admissions.	Discharges.	Deaths.	Constantly nonefective.
SPECIAL.																
Vaccinia.....	22.06	.....	.....	0.72	33.63	.....	.....	0.69	19.59	.....	.....	0.48	22.97	.....	.....	0.33
Typhoid fever.....	6.74	.....	0.25	0.98	6.22	.....	0.46	1.01	13.53	.....	.....	1.71	4.21	.....	0.38	.79
Malaria.....	145.42	.....	.....	2.65	111.95	.....	.....	2.27	14.72	.....	.....	.24	26.69	.....	.38	.68
Rheumatic fever.....	4.86	.....	.....	.44	.....	.....	.....	.27	2.98	.....	.....	.56	6.13	.....	.45	.44
Tuberculosis of the lungs.....	2.00	1.00	.25	1.61	1.84	1.38	.69	.27	2.39	0.80	.80	.92	0.88	0.88	.....	1.45
Syphilis.....	13.22	.....	.....	1.40	11.75	.....	.....	1.16	5.97	.....	.....	.72	15.31	.....	.....	1.44
Gonorrhea.....	51.39	.....	.....	2.83	68.19	.....	.....	4.86	37.81	.....	.....	2.19	50.19	.....	.....	5.01
All venereal diseases.....	82.82	.....	.....	5.46	107.81	.....	.....	7.86	56.10	.....	.....	3.73	80.02	.....	.....	8.64
All venereal and direct results.....	40.23	.....	.....	.54	17.51	.....	.....	.22	19.59	.....	.....	.27	22.97	.....	.....	.64
Neurasthenia.....	19.08	.....	.12	.48	12.44	.....	.....	.29	11.14	.....	.....	.14	21.82	.....	.....	1.16
Alcoholism.....	39.41	.....	.....	.64	28.49	.....	.....	.46	25.07	.....	.....	.42	31.65	.....	.....	1.26
Colic and constipation.....	86.67	.....	.....	.84	29.72	.....	.....	.23	31.44	.....	.....	.49	28.10	.....	.....	.27
Diarrheal diseases.....	86.55	.....	.....	.89	57.36	.....	.....	.43	86.35	.....	.....	.80	60.60	.....	.....	.42
Diseases of the heart.....	3.12	.75	.37	.26	2.76	.46	.....	.26	2.79	.40	.....	.26	1.91	.77	.....	.57
Coryza.....	14.34	.....	.....	.13	3.46	.....	.....	.03	2.39	.....	.....	.02	14.58	.....	.....	.15
Bronchitis.....	62.11	.37	.....	1.07	47.22	.....	.....	.90	34.62	.40	.....	1.03	90.36	.....	.....	1.19
Pneumonia.....	3.49	.12	.50	.36	8.69	.....	.46	.35	1.99	.....	.....	.20	4.59	.....	.....	.39
Diseases of the kidneys.....	1.62	.12	.....	.24	2.07	.46	.23	.46	3.54	.40	.....	.41	2.68	.....	.77	.33
Rheumatism and myalgia.....	66.35	.75	.....	2.36	57.83	.92	.....	1.78	63.27	1.19	.....	2.35	89.59	.38	.....	2.80
Boils and abscesses.....	35.79	.....	.....	.81	60.82	.....	.....	1.07	27.86	.....	.....	.60	35.22	.....	.....	.76
Conjunctivitis.....	9.48	.....	.....	.20	6.68	.....	.....	.13	9.95	.80	.....	.23	20.07	.....	.....	.37
All diseases of the eye.....	13.69	.12	.....	.59	14.51	.23	.....	.53	19.90	.....	.....	.83	34.06	.....	.....	.85
All diseases of the ear.....	8.11	.25	.12	.43	6.91	.....	.....	.40	4.78	.....	.....	.20	11.49	.....	.....	.34
Contusions and sprains.....	142.43	.60	.....	3.21	152.86	.....	.....	3.66	128.53	.....	.....	8.51	190.66	.....	.....	4.25
Dislocations.....	8.12	.....	.....	.17	8.92	.....	.....	.18	2.39	.....	.....	.28	3.06	.....	.....	.21
Fractures, not gunshot.....	6.98	.87	.....	.97	9.44	.23	.23	1.47	10.74	.....	.40	1.17	6.51	.88	.....	1.49
Wounds, not gunshot.....	51.76	.87	.....	1.48	48.77	.33	.33	1.26	57.71	.40	.....	1.52	47.09	.....	.....	1.13
Wounds, gunshot.....	1.76	.....	.87	.19	1.84	.23	.46	.22	1.59	.....	.....	.14	3.46	.....	1.53	.80
GROUPED.																
Infectious diseases, general and local.....	376.15	1.25	1.25	13.88	378.73	1.38	2.07	14.34	201.35	.80	1.59	9.52	290.20	.77	1.15	12.00
Local infections (also entered under diseases of organs).....	153.82	.12	1.00	8.64	154.88	.23	.46	3.54	107.84	.40	.....	3.40	220.90	.....	.77	3.96
Diseases of nutrition, general.....	2.12	.12	.....	.11	2.63	.23	.....	.22	1.99	.40	.....	.47	.....	.....	.....	.06

Diseases of the nervous system.....	73.84	1.25	.50	1.91	40.08	.23	.23	1.06	39.80	1.59	.....	1.47	65.47	.77	.77	1.93
Diseases of the digestive system.....	238.92	.50	.75	3.52	223.70	.46	.23	3.83	226.42	.80	.....	4.15	206.08	.....	1.53	3.25
Diseases of the circulatory system.....	5.21	1.00	.37	.42	4.15	.09	.23	.42	3.58	.80	.....	.81	3.45	.77	.....	.08
Diseases of the respiratory organs.....	86.05	.62	.50	1.78	58.74	.46	.46	1.44	44.17	.40	.....	1.36	115.62	.38	.....	1.95
Diseases of the genito-urinary system.....	9.10	.25	.....	.63	8.98	.46	.23	.74	10.35	.40	.....	1.09	11.10	.....	.77	.83
Diseases of the lymphatic system and ductless glands.....	3.24	.....	.....	.....	2.30	.....	.....	.09	1.99	.....	.....	.12	2.30	.....	.38	.20
Diseases of the muscles, bones, and joints.....	71.81	1.25	.....	2.47	64.73	1.15	.....	2.19	79.59	1.99	.....	8.15	94.18	.77	.....	3.04
Diseases of the integument and subcutaneous connective tissue.....	68.47	.....	.....	1.62	94.45	.....	.....	2.05	48.95	.....	.....	1.45	60.11	.....	.....	1.25
Diseases of the organs of special sense.....	23.20	.75	.12	1.13	22.35	.23	.....	.76	27.86	.80	.....	1.80	46.71	.....	.....	1.22
Unclassified.....	2.74	.....	.12	.07	2.07	.....	.....	.02	.80	.....	.....	.01	3.45	.....	.....	.40
General injuries.....	10.73	.12	1.62	.17	5.76	.92	.92	.16	16.71	.....	1.19	.27	3.83	.....	.77	.06
Injuries to special parts.....	268.40	1.75	.37	8.07	280.35	2.07	.92	9.44	271.79	1.59	1.99	9.26	331.16	1.15	1.91	10.71
Total for diseases.....	980.92	6.98	3.62	27.59	902.79	4.84	3.46	26.65	686.83	7.96	1.59	24.40	959.42	3.45	4.59	26.22
Total for injuries.....	279.12	1.87	2.00	8.24	286.11	2.07	1.84	9.60	288.51	1.59	3.18	9.53	334.99	1.15	2.68	10.77
Total for all causes.....	1,260.04	8.85	5.61	35.83	1,188.89	6.91	5.30	36.25	975.33	9.55	4.77	33.93	1,294.41	4.59	7.27	36.99

TABLE XII.—*Ratios of admission to sick report, discharge, death, and constantly non-effective, etc.—Continued.*

Causes of admission to sick report.	Department of Texas.				Department of the Colorado.				Department of California.				Department of the Columbia.			
	1,762				3,087				1,588				1,452			
	Admissions.	Discharges.	Deaths.	Constantly non-effective.	Admissions.	Discharges.	Deaths.	Constantly non-effective.	Admissions.	Discharges.	Deaths.	Constantly non-effective.	Admissions.	Discharges.	Deaths.	Constantly non-effective.
SPECIAL.																
Vaccinia.....	25.68			0.65	37.25			0.84	22.67			0.45	22.73			0.36
Typhoid fever.....	14.19		0.57	1.78	8.24			0.55					4.13			.50
Malarial infections.....	64.70			1.20	22.63			1.07	30.86			.72	4.92			.59
Rheumatic fever.....	2.27			.22	6.80			.67	2.52				1.38			.39
Tuberculosis of the lungs.....	11.70	0.57		1.45	10.11	2.59	.65	1.48	1.89	1.26		.29	4.13	1.38		.17
Gonorrhea.....	11.35			1.49	52.15			1.34	5.04			.40				.33
Syphilis.....	68.40			7.11	52.45			2.88	1.56			2.49	30.99			1.62
All venereal diseases.....	108.40			7.92	22.63			5.84	65.50			4.03	43.89			2.07
Alcoholism and direct results.....	94.40			.22	20.73			.20	17.00			.92	40.64			4.37
Neuritis.....	13.65			.15	30.23			.28	6.30			.17	15.15			.16
Tetanus.....	14.19			.20	57.05			1.08	16.37			.25	19.23			.89
Colic and constipation.....	23.27			.16	57.02			.85	10.70			.09	17.97			.25
Diarrhical diseases.....	130.80	.57		.95	82.92			.88	32.12			.84	26.17			.22
Diseases of the heart.....	1.70		.57	.20	4.83	1.94	.82	.38	2.62			.54	4.16	.69	1.88	.25
Chrysis.....	6.24			.67	11.34			.08	1.89			.02	4.12			.03
Bronchitis.....	58.46	.57		1.98	32.94			.08	27.71			.53	36.95			.53
Pneumonia.....	1.14			.30	4.86	.32		.39				.03	1.38			.34
Diseases of the kidneys.....	1.14		1.14	.13	8.65			.39	2.52			.20	1.83	.69		.27
Rheumatism and myalgia.....	57.80	.57		1.72	88.11	.32		2.03	27.04	.63		.51	41.32	.69		1.37
Bolls and abscesses.....	77.65			1.72	36.23			.85	32.75			.51	35.13			.62
Conjunctivitis.....	10.22	.57		.18	14.90			.13	6.43			.12	7.82			.07
All diseases of the eye.....	10.22	.57		.18	14.90			.13	6.43			.12	7.82			.07
All diseases of the ear.....	10.22	.57		.18	14.90			.13	6.43			.12	7.82			.07
Contusions and sprains.....	108.43	1.14		4.19	19.27	.07		3.02	163.10			4.62	112.15			2.93
Dislocations.....	9.24			.31	16.56	.82		3.02	163.10			4.62	112.15			2.93
Fractures, not gunshot.....	9.24		.57	.31	2.39			1.03	7.15			1.22	4.13		.69	.23
Fractures, not gunshot.....	48.85			1.11	61.55			1.03	37.16			1.50	3.86			1.03
Wounds, not gunshot.....	48.85			1.11	61.55			1.03	37.16			1.50	3.86			1.03
Wounds, gunshot.....	2.27		.57	.20	4.54	1.30	.97	.80	1.89		.63	.16	4.13	.69	.69	.73
GROUPED.																
Infectious diseases, general and local.....	590.24	.57	1.14	18.14	220.28	2.59	1.62	11.69	285.75	1.26	2.52	8.81	163.92	1.38		6.99
Local infections (also entered under diseases of organs).....	168.56		.57	3.93	222.91	.45		4.22	92.57	1.89		2.10	100.54	.69	.69	2.58
Diseases of nutrition, general.....					4.31	1.30		.33	.63			.04	2.07			.09

Diseases of the nervous system.....	53.35	.57	.57	.96	54.10	.65	.....	1.13	35.26	.63	.....	1.97	62.97	.69	.....	1.43
Diseases of the digestive system.....	252.56	1.14	.57	3.33	352.12	.97	.....	5.20	90.05	.....	.....	1.56	147.39	.09	.....	3.84
Diseases of the circulatory system.....	2.27	.....	.57	1.30	6.80	1.94	.32	.43	3.78	.63	.....	.74	4.82	.69	.....	1.41
Diseases of the respiratory organs.....	76.62	.57	.....	1.59	115.00	.65	.....	2.15	36.53	.63	.....	1.04	48.21	.....	.....	1.01
Diseases of the genito-urinary system.....	8.51	.....	1.14	.43	11.06	.32	.....	.70	6.04	.63	.....	.50	15.15	2.07	.69	1.54
Diseases of the lymphatic system and duct- less glands.....	3.41	.....	.....	.28	1.30	.....	.....	.02	1.26	.....	.....	.09	.69	.....	.....	.02
Diseases of the muscles, bones, and joints.....	72.65	1.70	.....	2.05	92.65	.65	.....	1.84	34.01	.63	.....	1.14	48.21	.69	.....	1.48
Diseases of the integument and subcuta- neous connective tissue.....	115.78	.....	.....	2.56	65.44	.....	.....	1.78	72.42	.....	.....	1.37	57.86	.....	.....	1.09
Diseases of the organs of special sense.....	22.13	1.14	.....	.74	22.68	.97	.....	.63	11.33	.63	.....	.45	13.08	.69	.....	.36
Unclassified.....	1.14	.....	.....	.02	2.59	.....	.....	.08	3.78	.....	.....	.06	2.76	.....	.....	.04
General injuries.....	10.78	.57	.57	.64	8.75	.....	.65	.15	3.15	.....	.....	.02	4.13	.....	.....	.06
Injuries to special parts.....	312.71	1.14	1.70	8.64	316.49	3.89	.97	9.47	250.63	1.36	.63	8.53	213.50	3.44	1.38	7.26
Total for diseases.....	1,198.64	5.68	3.97	30.37	946.83	10.04	1.94	26.04	559.82	5.04	2.52	17.77	566.81	6.89	3.44	18.34
Total for injuries.....	323.50	1.70	2.27	9.28	325.24	3.89	1.62	9.63	253.78	1.36	.63	8.56	217.63	3.44	2.76	7.31
Total for all causes.....	1,522.14	7.38	6.24	39.65	1,272.05	13.93	3.56	35.66	813.60	6.30	3.15	26.33	784.44	10.33	6.20	25.65

TABLE XIII.—*Distribution of certain important diseases at United States military posts during the year 1897.*

Name of station.	Scarlet fever.	Measles.	Smallpox.	Influenza.	Mumps.	Diphtheria.	Typhoid fever.	Erysipelas.	Tonsillitis.	Bronchitis.	Pneumonia.	Total.
Adams, Fort, R. I.	3	2		39			3		8	16	3	80
Alcatraz Island, Cal.		1		22	5				4	2		34
Allegheny Arsenal, Pa.									1			1
Angel Island, Cal.		2		25					3	2		32
Apache, Fort, Ariz.									10	36	1	47
Assiniboine, Fort, Mont.				50					20	19		89
Augusta Arsenal, Ga.				6				1				7
Barrancas, Fort, Fla.		1		11			6		1	2		21
Bayard, Fort, N. Mex.							1	2	36	11	3	53
Benicia Barracks, Cal.		5		1					7	12		25
Biles, Fort, Tex.							14		7	3		24
Boise Barracks, Idaho.		3		4						2	1	10
Boston attending surgeon, Mass.						1						1
Brady, Fort, Mich.				9	2		2		9	5	2	29
Brown, Fort, Tex.							1		1	11	1	14
Canby, Fort, Wash.		1					3		1	1		6
Clark, Fort, Tex.				26			3		8	74		111
Columbia Arsenal, Tenn.				2					1	1		4
Columbus Barracks, Ohio.		7		32	6				27	23		95
Columbus, Fort, N. Y.				10			1		14	9		34
Crook, Fort, Nebr.		1		43			1		11	33	1	90
Custer, Fort, Mont.		4		33		1	26		2	2	1	69
D. A. Russell, Fort, Wyo.		9		1	6				46	73	1	136
Denver headquarters, Colorado.				2						1		3
Douglas, Fort, Utah.				24					41	126	9	200
DuChesne, Fort, Utah.				30								30
Eagle Pass, Camp, Tex.				11				1	4	3		19
Ethan Allen, Fort, Vt.				27					6	8		41
Frankford Arsenal, Pa.				5						2		7
Grant, Fort, Ariz.						2						
Hamilton, Fort, N. Y.		2		3			1	1	6	7		20
Harrison, Fort, Mont.				4			2		4	11	2	23
Hot Springs general hospital, Ark.				2	1							3
Husachuca, Fort, Ariz.									57	31		88
Indianapolis Arsenal, Ind.				5						3		8
Jackson Barracks, La.				4								6
Jefferson Barracks, Mo.				25			1		25	45	2	102
Kennebec Arsenal, Me.									2	1		3
Keogh, Fort, Mont.		14		67			2	2	11	17		113
Key West Barracks, Fla.				5					1	3		9
Leavenworth, Fort, Kans.	1	21		132			1	1	20	17	2	105
Logan, Fort, Colo.		6		41			3	2	60	42	1	155
Logan H. Roots, Fort, Ark.				2					5			8
Madison Barracks, N. Y.				64			1	2	25	33		133
Mason, Fort, Cal.										5		5
McHenry, Fort, Md.				14					7	8		29
McIntosh, Fort, Tex.				15			1		1	3		20
McPherson, Fort, Ga.				69		2	5		15	30	3	124
Meade, Fort, S. Dak.		11		89			1	2	95	53	6	257
Missoula, Fort, Mont.				17					8	10		35
Monroe, Fort, Va.		52		34			5		24	46	8	169
Myer, Fort, Va.				24			3		5	36		68
New York attending surgeon, N. Y.									2			2
Niagara, Fort, N. Y.				29					1	7		37
Niobrara, Fort, Nebr.	1			24			2		25	20	1	73
Omaha headquarters, Nebr.				2								2
Plattsburg Barracks, N. Y.	1	2		11	8		2		17	46		87
Porter, Fort, N. Y.		1							2	3		6
Preble, Fort, Me.				4			1		1			6
Presidio of San Francisco, Cal.		6		120	11		2		9	12	1	161
Reno, Fort, Okla.				43			3		4	9		59
Riley, Fort, Kans.				34			2		15	20	1	72
Ringgold, Fort, Tex.							1		3	1		5
Robinson, Fort, Nebr.		1		144			7		33	39	3	227
Rock Island Arsenal, Ill.				21				1		9	1	34
St. Francis Barracks, Fla.				8					2			8
San Houston, Fort, Tex.				9	1		4	1		6	1	22
San Antonio headquarters, Tex.				2								1
San Carlos, Ariz.												1
San Diego Barracks, Cal.				15					3	3		21
Sandy Hook proving ground, N. J.								1	4			5
San Francisco headquarters, Cal.										1		1
Schuyler, Fort, N. Y.				20					6			26
Sheridan, Fort, Ill.		1		90			3	1	26	62	4	167

TABLE XIII.—*Distribution of certain important diseases at United States military posts during the year 1897—Continued.*

Name of station.	Scarlet fever.	Measles.	Smallpox.	Influenza.	Mumps.	Diphtheria.	Typhoid fever.	Erysipelas.	Tonsillitis.	Bronchitis.	Pneumonia.	Total.
Sherman, Fort, Idaho	4			8				1	6	29	1	49
Sill, Fort, Okla.				62	1		9		9	24		105
Slocum, Fort, N. Y.				59	1				15	11	2	89
Snelling, Fort, Minn.				9		1	2		13	17	1	43
Spokane, Fort, Wash.				1					2	2		5
Springfield Armory, Mass.				12	1				5	4		22
Thomas, Fort, Ky.	4			3	18	1	4		49	30	5	114
Trumbull, Fort, Conn.				9					4	2		15
Vancouver Barracks, Wash.	25			18		1	1		14	23		82
Wadsworth, Fort, N. Y.	7						1	1	8	50		67
Walla Walla, Fort, Wash.	12			23					5	1		43
Warren, Fort, Mass.							1		2	12		15
Washakie, Fort, Wyo.				4					2	13		19
Washington Barracks, D. C.	1			14			5	1	9	39	4	73
Washington, Fort, Md.									2	1		3
Watertown Arsenal, Mass.				2		1	1		2	1	1	8
Watervliet Arsenal, N. Y.				6			2		4	12		24
Wayne, Fort, Mich.	3			15					11	3	3	35
West Point, N. Y.				26	7				21	16	1	71
Whipple Barracks, Ariz.							3		4	8	1	16
Willeta Point, N. Y.					1				13	33	1	48
Wingate, Fort, N. Mex.	1			2			1		8	13		25
Yates, Fort, N. Dak.				7		1			3	4	1	16
Yellowstone, Fort, Wyo.							1					1
Field				5			14	5	15	42		81
The Army	6	227	1	1,890	69	11	159	29	1,056	1,518	81	5,047

TABLE XIV.—*Twenty posts giving the highest admission rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, respectively, during 1897.*

I.—MALARIAL DISEASES.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly noneffective.
Washington Barracks, D. C.	295	576.27			7.34
Fort Myer, Va.	281	537.37			9.25
Fort Logan H. Roots, Ark.	134	485.07			5.70
Fort Barrancas, Fla.	130	376.92			11.72
Willeta Point, N. Y.	426	321.60			5.86
Rock Island Arsenal, Ill.	75	320.00			4.46
Jefferson Barracks, Mo.	352	312.50			6.91
Fort Brown, Tex.	112	303.57			4.92
Jackson Barracks, La.	108	287.04			5.25
West Point, N. Y.	381	236.22			2.64
Fort Sill, Okla.	381	178.48			4.94
St. Francis Barracks, Fla.	144	145.83			3.41
Fort Wadsworth, N. Y.	194	144.33			2.20
Fort Monroe, Va.	551	127.04			2.00
Camp Eagle Pass, Tex.	64	125.00			3.42
Fort Leavenworth, Kans.	798	115.29			2.39
Fort Niagara, N. Y.	201	64.53			1.96
Key West Barracks, Fla.	127	64.49			3.34
Fort Slocum, N. Y.	163	83.26			3.89
Fort Ringgold, Tex.	123	89.43			3.19
The Army	25,417	78.88	0.04	0.04	1.63

TABLE XIV:—Twenty posts giving the highest admission rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, etc.—Continued.

II.—RHEUMATISM.

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly noneffective.
Rock Island Arsenal, Ill.	75	226.67			6.54
Fort Keogh, Mont.	294	183.67	10.20		9.90
Fort Douglas, Utah	523	164.44	1.91		3.33
Fort D. A. Russell, Wyo.	460	152.18			5.20
Fort Robinson, Nebr.	404	150.99	2.48		4.38
Fort Wingate, N. Mex.	141	148.94			2.78
Fort Clark, Tex.	373	144.77	2.68		3.86
Jackson Barracks, La.	108	129.63			2.46
Watervliet Arsenal, N. Y.	59	118.64			1.73
Fort Logan, Colo.	620	117.74			2.64
Fort Barrancas, Fla.	130	107.70	7.69		3.81
Fort Riley, Kans.	785	100.64			1.07
Fort Wadsworth, N. Y.	194	97.94			1.40
Fort Thomas, Ky.	459	95.87	4.96		3.99
Fort Washakie, Wyo.	119	92.44			3.37
Fort McPherson, Ga.	458	89.52			2.60
Boise Barracks, Idaho	123	89.43			1.45
West Point, N. Y.	381	89.24			1.17
Whipple Barracks, Ariz.	161	86.96			2.26
Washington Barracks, D. C.	295	84.74			2.17
The Army	25,417	65.12	.91		2.63

III.—VENEREAL DISEASES.

Fort Douglas, Utah	523	225.64			11.81
Fort Logan H. Roots, Ark.	134	223.88			12.08
Jackson Barracks, La.	108	212.97			11.21
Fort McIntosh, Tex.	128	210.94			12.62
Camp Eagle Pass, Tex.	64	187.50			15.28
Fort Ringgold, Tex.	123	186.99			14.41
Fort Brown, Tex.	112	169.64			19.81
Jefferson Barracks, Mo.	352	164.77			8.13
Fort Thomas, Ky.	459	159.04			13.50
Columbus Barracks, Ohio	517	147.00			9.78
Fort Mason, Cal.	70	142.86			12.21
Fort Riley, Kans.	785	142.68			12.12
Fort Barrancas, Fla.	130	138.47			6.41
Fort Leavenworth, Kans.	798	134.04			11.98
Fort Wadsworth, N. Y.	194	128.87			5.75
Fort Logan, Colo.	620	124.19			6.87
Madison Barracks, N. Y.	496	123.46			7.17
Fort Wayne, Mich.	279	121.86			9.38
Fort Crook, Nebr.	519	119.46			10.96
Fort McPherson, Ga.	458	117.90			11.05
The Army	25,417	84.59	0.04		5.65

TABLE XIV.—*Twenty posts giving the highest admission rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, etc.*—Continued.

IV.—DIARRHEAL DISEASES.

Name of station.	Mean strength.	Ratio per 1,010 of mean strength.			
		Admissions.	Discharges.	Deaths.	Constantly noneffective.
Fort Clark, Tex	373	297.59	.....	.....	2.05
Fort Huachuca, Ariz.....	295	274.58	.....	.....	2.93
Fort Preble, Me	70	200.00	.....	.....	3.17
Fort Wadsworth, N. Y	194	180.41	.....	.....	1.02
Fort Ringgold, Tex.....	123	178.86	.....	.....	1.74
Fort Keogh, Mont.....	294	176.87	.....	.....	2.06
Fort Schuyler, N. Y.....	131	175.57	.....	.....	.88
Jackson Barracks, La.....	108	166.67	.....	.....	1.78
Fort Monroe, Va	551	161.52	.....	.....	1.72
Camp Eagle Pass, Tex	64	156.25	.....	.....	1.24
Fort Adams, R. I.....	284	144.38	.....	.....	1.22
Key West Barracks, Fla.....	127	141.73	.....	.....	2.46
Fort McIntosh, Tex.....	128	132.81	.....	.....	.86
St. Francis Barracks, Fla.....	144	131.94	6.94	.....	2.51
Fort Barrancas, Fla.....	130	130.77	.....	.....	2.04
Fort Riley, Kans.....	785	114.65	.....	.....	.90
Washington Barracks, D. C.....	295	105.08	.....	.....	1.41
Fort Meade, S. Dak.....	475	103.16	.....	.....	.62
Fort Apache, Ariz.....	355	101.41	.....	.....	.90
Fort D. A. Russell, Wyo.....	460	97.82	.....	.....	.74
The Army.....	25,417	73.77	.11	.....	.71

TABLE XV.—*Twenty posts giving the highest noneffective rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, respectively, during 1897.*

I.—MALARIAL DISEASES.

Name of station.	Mean strength.	Constantly noneffective per 1,000 of mean strength.	Average number of sick daily.	Average number of days each case was treated.
Fort Barrancas, Fla.....	130	11.72	1.52	11.35
Fort Myer, Va.....	281	9.25	2.60	6.29
Washington Barracks, D. C.....	295	7.34	2.16	4.65
Jefferson Barracks, Mo.....	352	6.91	2.43	8.07
Willels Point, N. Y.....	426	5.86	2.50	6.65
Fort Bayard, N. Mex.....	361	5.71	2.06	31.38
Fort Logan H. Root, Ark.....	134	5.70	.76	4.29
Jackson Barracks, La.....	108	5.25	.57	6.68
Fort Sill, Okla.....	381	4.94	1.88	10.10
Fort Brown, Tex.....	112	4.92	.55	5.91
Fort Ethan Allen, Vt.....	234	4.91	1.15	34.92
Rock Island Arsenal, Ill.....	75	4.46	.33	5.08
Fort Wayne, Mich.....	279	3.51	.98	25.70
Camp Eagle Pass, Tex.....	64	3.42	.22	10.00
St. Francis Barracks, Fla.....	144	3.41	.49	8.52
Key West Barracks, Fla.....	127	3.34	.42	12.92
Fort Ringgold, Tex.....	123	3.19	.39	12.88
Fort McPherson, Ga.....	468	3.02	1.38	18.00
West Point, N. Y.....	381	2.64	1.01	4.08
Fort Leavenworth, Kans.....	798	2.39	1.91	7.58
The Army.....	25,417	1.63	41.54	7.56

TABLE XV.—Twenty posts giving the highest noneffective rates for malarial diseases, rheumatism, and venereal and diarrheal diseases, etc.—Continued.

II.—RHEUMATISM.

Name of station.	Mean strength.	Constantly non-effective per 1,000 of mean strength.	Average number of sick daily.	Average number of days each case was treated.
Fort Keogh, Mont.	294	9.30	2.73	18.48
Rock Island Arsenal, Ill.	75	6.54	.49	10.53
St. Francis Barracks, Fla.	144	6.35	.91	30.36
Fort Slocum, N. Y.	193	6.10	1.18	28.07
Fort D. A. Russell, Wyo.	460	5.20	2.39	12.47
Fort Robinson, Nebr.	404	4.38	1.77	10.59
Fort Thomas, Ky.	459	3.99	1.83	15.20
Fort Washakie, Wyo.	119	3.87	.46	15.27
Fort Clark, Tex.	373	3.86	1.44	9.74
Fort Barranca, Fla.	130	3.81	.50	12.93
Plattsburg Barracks, N. Y.	522	3.57	1.86	21.25
Fort Huachuca, Ariz.	295	3.44	1.01	16.83
Columbus Barracks, Ohio.	517	3.39	1.75	18.26
Madison Barracks, N. Y.	486	3.36	1.63	17.03
Fort Douglas, Utah.	523	3.33	1.74	7.40
Jefferson Barracks, Mo.	352	3.10	1.09	20.95
Fort Niagara, N. Y.	201	2.78	.56	13.60
Fort Wingate, N. Mex.	141	2.78	.89	6.81
Fort Logan, Colo.	620	2.64	1.64	8.19
Fort McPherson, Ga.	458	2.60	1.19	10.61
The Army	25,417	2.63	66.79	14.78

III.—VENEREAL DISEASES.

Fort Brown, Tex.	112	19.81	2.22	42.64
Camp Eagle Pass, Tex.	64	15.28	.98	29.75
Fort Ringgold, Tex.	123	14.41	1.77	28.13
Fort Thomas, Ky.	459	13.50	6.20	30.99
Fort McIntosh, Tex.	128	12.82	1.64	22.19
Fort Mason, Cal.	70	12.21	.85	31.20
Fort Riley, Kans.	785	12.12	9.53	31.02
Fort Logan H. Roots, Ark.	134	12.08	1.62	19.70
Fort Leavenworth, Kans.	798	11.98	9.56	32.62
Fort Douglas, Utah.	523	11.81	6.18	19.10
Fort Porter, N. Y.	130	11.63	1.51	36.80
Fort Clark, Tex.	373	11.27	4.21	36.55
Jackson Barracks, La.	108	11.21	1.81	19.22
Fort McPherson, Ga.	458	11.05	5.05	34.15
Fort Crook, Nebr.	519	10.96	5.69	33.43
Columbus Barracks, Ohio.	517	9.78	5.05	34.28
Fort Wayne, Mich.	279	9.38	2.62	28.09
Key West Barracks, Fla.	127	9.21	1.17	30.50
Fort Preble, Me.	70	8.41	.59	26.87
Fort Huachuca, Ariz.	295	8.31	2.45	27.12
The Army	25,417	5.65	143.47	24.36

IV.—DIARRHEAL DISEASES.

Fort Preble, Me.	70	3.17	0.22	5.79
Fort Huachuca, Ariz.	295	2.93	.87	2.90
St. Francis Barracks, Fla.	144	2.51	.86	6.95
Key West Barracks, Fla.	127	2.48	.32	6.39
Fort Grant, Ariz.	317	2.12	.67	9.80
Fort Keogh, Mont.	294	2.06	.61	4.25
Fort Clark, Tex.	373	2.05	.76	2.51
Fort Barranca, Fla.	130	2.04	.27	5.71
Jackson Barracks, La.	108	1.78	.19	3.89
Fort Ringgold, Tex.	123	1.74	.21	3.55
Fort Monroe, Va.	551	1.72	.95	3.88
Washington Barracks, D. C.	295	1.41	.42	4.90
Camp Eagle Pass, Tex.	64	1.24	.08	2.90
Fort Adams, R. I.	284	1.22	.35	3.07
Fort McPherson, Ga.	458	1.15	.53	5.65
Fort Wadsworth, N. Y.	194	1.02	.20	2.06
Fort Snelling, Minn.	488	1.02	.50	4.55
Fort Niagara, N. Y.	201	.99	.20	5.21
Angel Island, Cal.	230	.93	.21	6.50
Fort Riley, Kans.	785	.90	.71	2.88
The Army	25,417	.71	18.10	2.52

TABLE XVI.—*Prevalence of alcoholism at the various posts and its influence on the effective force of the garrisons for the year 1897.*

Name of station.	Mean strength.	Ratio per 1,000 of mean strength.		Name of station.	Mean strength.	Ratio per 1,000 of mean strength.	
		Admissions.	Constantly non-effective.			Admissions.	Constantly non-effective.
Fort Warren, Mass.....	133	105.26	1.38	Fort Monroe, Va.....	551	14.52	0.16
Fort Sherman, Idaho.....	340	100.00	1.24	Fort Preble, Me.....	70	14.29	.16
Willeys Point, N. Y.....	426	79.81	1.02	Fort Niobrara, Nebr.....	513	13.65	.20
Fort D. A. Russell, Wyo.....	460	78.26	2.75	Presidio of San Francisco, Cal.....	745	10.74	.11
Camp Eagle Pass, Tex.....	64	78.12	1.28	Fort Myer, Va.....	281	10.68	.12
Fort Spokane, Wash.....	129	77.52	.62	Fort Meade, S. Dak.....	475	10.53	.06
Fort Wingate, N. Mex.....	141	70.92	.47	Washington Barracks, D. C.....	295	10.17	.10
Fort Niagara, N. Y.....	201	69.66	1.68	Fort Riley, Kans.....	785	8.92	.08
Columbus Barracks, Ohio.....	517	69.63	.96	Fort Reno, Okla.....	344	8.72	.06
Plattsburg Barracks, N. Y.....	522	67.05	.83	Fort Ethan Allen, Vt.....	234	8.55	.13
Fort Washington, Md.....	30	66.67	.18	Jefferson Barracks, Mo.....	352	8.52	.07
Madison Barracks, N. Y.....	486	65.84	.92	Fort Ringgold, Tex.....	123	8.13	.02
Fort Wadsworth, N. Y.....	194	61.86	.86	Fort Douglas, Utah.....	523	7.65	.04
Benicia Barracks, Cal.....	205	58.54	.74	Fort Logan H. Root, Ark.....	134	7.46	.04
Fort Slocum, N. Y.....	193	57.00	.62	Fort Missoula, Mont.....	272	7.35	.09
Rock Island Arsenal, Ill.....	75	53.33	1.17	Fort Assiniboine, Mont.....	468	6.15	.05
Fort Thomas, Ky.....	459	50.11	.64	Fort Apache, Ariz.....	355	5.63	.08
Fort Columbus, N. Y.....	247	48.58	1.31	Fort Custer, Mont.....	294	3.40	.02
Key West Barracks, Fla.....	127	47.24	.69	Alcatraz Island, Cal.....	135	.....	.....
Fort Bayard, N. Mex.....	361	47.09	1.20	Allegheny Arsenal, Pa.....	30	.....	.....
Fort Snelling, Minn.....	488	45.08	.66	Augusta Arsenal, Ga.....	28	.....	.....
Fort Harrison, Mont.....	137	43.80	.70	Baltimore attending surgeon, Md.....	7	.....	.....
Fort Brady, Mich.....	255	43.14	.48	Boise Barracks, Idaho.....	123	.....	.....
Fort Adams, R. I.....	284	42.26	.42	Boston attending surgeon, Mass.....	7	.....	.....
Sandy Hook proving ground, N. J.....	72	41.67	.19	Fort Canby, Wash.....	74	.....	.....
Fort Keogh, Mont.....	294	37.41	.58	Chicago headquarters, Ill.....	26	.....	.....
Jackson Barracks, La.....	108	37.04	.23	Columbia Arsenal, Tenn.....	20	.....	.....
Fort Brown, Tex.....	112	35.71	.37	Denver headquarters, Colo.....	16	.....	.....
Fort Hamilton, N. Y.....	283	35.34	.78	Fort DuChesne, Utah.....	115	.....	.....
St. Francis Barracks, Fla.....	144	34.72	.27	Frankford Arsenal, Pa.....	46	.....	.....
Fort Logan, Colo.....	620	33.87	.44	Indianapolis Arsenal, Ind.....	25	.....	.....
Fort McPherson, Ga.....	458	32.75	.26	Kennebec Arsenal, Me.....	16	.....	.....
Fort McIntosh, Tex.....	128	31.25	.15	Fort Mason, Cal.....	70	.....	.....
Fort Porter, N. Y.....	130	30.77	.55	New York attending surgeon, N. Y.....	21	.....	.....
Fort Schuyler, N. Y.....	131	30.53	.33	Omaha headquarters, Nebr.....	12	.....	.....
Angel Island, Cal.....	230	30.44	.50	Philadelphia attending surgeon, Pa.....	22	.....	.....
Fort Leavenworth, Kans.....	798	27.57	.33	Fort Robinson, Nebr.....	404	.....	.....
Fort Sam Houston, Tex.....	645	27.91	.25	St. Paul headquarters, Minn.....	24	.....	.....
Springfield Armory, Mass.....	39	25.64	.28	San Antonio headquarters, Tex.....	14	.....	.....
Vancouver Barracks, Wash.....	560	25.00	.22	San Carlos, Ariz.....	43	.....	.....
Fort Barrancas, Fla.....	130	23.08	.23	San Diego Barracks, Cal.....	66	.....	.....
Hot Springs general hospital, Ark.....	44	22.73	.81	San Francisco headquarters, Cal.....	27	.....	.....
Fort McHenry, Md.....	177	22.60	.34	Sullivan's Island, S. C.....	14	.....	.....
Fort Wayne, Mich.....	279	21.51	.29	Fort Walla Walla, Wash.....	192	.....	.....
Fort Crook, Nebr.....	519	21.19	.50	Fort Washakie, Wyo.....	119	.....	.....
West Point, N. Y.....	381	21.00	.19	Watertown Arsenal, Mass.....	41	.....	.....
Fort Huachuca, Ariz.....	295	20.34	.19	Watervliet Arsenal, N. Y.....	59	.....	.....
Fort Bliss, Tex.....	211	18.96	.14	Fort Yellowstone, Wyo.....	132	.....	.....
Fort Grant, Ariz.....	317	18.93	.11				
Fort Clark, Tex.....	373	18.77	.15				
Whipple Barracks, Ariz.....	161	18.63	.07				
Fort Sheridan, Ill.....	739	17.59	.24				
Fort Yates, N. Dak.....	184	16.30	.27				
Fort Sill, Okla.....	381	15.75	.27				
Fort Trumbull, Conn.....	66	15.15	.08				
				The Army.....	25,417	27.86	.39

TABLE XVII.—*Causes of rejection on primary examination among 13,139 recruits physically examined during the year 1897, with corresponding ratios per thousand of each race examined.*

Number examined	White, 12,131.		Colored, 1,008.		Total, 13,139.	
Causes of rejection.	Number rejected.	Ratio per 1,000.	Number rejected.	Ratio per 1,000.	Number rejected.	Ratio per 1,000.
Veneral diseases.....	120	9.89	22	21.83	142	10.80
Other infectious diseases	22	1.81	1	.99	23	1.75
Diseases of nutrition, general	4	.33			4	.30
Diseases of the nervous system	8	.66			8	.61
Diseases of the digestive system	155	12.78	9	8.93	164	12.48
Diseases of the circulatory system	341	28.11	21	20.83	362	27.55
Diseases of the respiratory organs	19	1.57	1	.99	20	1.52
Diseases of the genito-urinary system	299	24.65	10	9.93	309	23.52
Diseases of the lymphatic system and ductless glands	23	1.90	1	.99	24	1.83
Diseases of the muscles, bones, and joints	51	4.20	3	2.98	54	4.11
Diseases of the integument and subcutaneous connective tissue	63	5.19	4	3.97	67	5.10
Diseases of the eye	470	38.74	18	17.86	488	37.14
Diseases of the ear	56	4.62			56	4.26
Diseases of the nose	15	1.24			15	1.14
Hernia	63	5.19	7	6.94	70	5.33
Other injuries	37	3.05	2	1.98	39	2.97
Over height	3	.25	1	.99	4	.30
Under height	53	4.37	2	1.98	55	4.19
Over weight and obesity	22	1.81	4	3.97	26	1.98
Under weight	330	27.20	17	16.87	347	26.41
Imperfect physique	734	60.51	41	40.67	775	58.98
Mental insufficiency	10	.83	1	.99	11	.83
Over age	7	.58	1	.99	8	.61
Minors	57	4.70	4	3.97	61	4.64
Married, or having dependent relatives	23	1.90	1	.99	24	1.83
Illiteracy	16	1.31	2	1.98	18	1.37
Imperfect knowledge of English	3	.25			3	.23
Reenlistment disapproved for various reasons	26	2.14	2	1.98	28	2.13
Character bad or doubtful	64	5.28	3	2.98	67	5.10
References, none or unsatisfactory	68	5.61	6	5.95	74	5.63
Aliens	8	.66			8	.61
General unfitness and undesirable	83	6.84	11	10.91	94	7.15
No vacancies	6	.49	1	.99	7	.53
Unclassified	35	2.88	2	1.98	37	2.82
Total	3,294	271.54	198	196.43	3,492	265.77

TABLE XVIII.—*Number of white and colored applicants for enlistment physically examined during the year 1897, with the number accepted, rejected on primary examination, and declined, and ratios per thousand.*

	White.		Colored.		Total.	
	Num-ber.	Ratio per 1,000 white examined.	Num-ber.	Ratio per 1,000 colored examined.	Num-ber.	Ratio per 1,000 examined.
Examined	12,131	1,000.00	1,008	1,000.00	13,139	1,000.00
Accepted	8,433	695.16	793	786.71	9,226	702.19
Rejected on primary examination	3,294	271.54	198	196.43	3,492	265.77
Declined	404	33.30	17	16.86	421	32.04

In addition, 19 Indians were examined, of whom all were enlisted as scouts.

TABLE XIX.—*Nativity of white and colored recruits accepted during the year 1897, with ratios per thousand accepted.*

Nativity.	White.		Colored.		Total.	
	Num- ber.	Ratio per 1,000 accepted.	Num- ber.	Ratio per 1,000 accepted.	Num- ber.	Ratio per 1,000 accepted.
United States	6,062	657.06	788	85.41	6,850	742.47
England	214	23.20			214	23.20
Scotland	49	5.31			49	5.31
Wales	4	.43			4	.43
Ireland	713	77.28			713	77.28
Canada	118	12.79	4	.43	122	13.22
Other British possessions	6	.65			6	.65
France	23	2.49			23	2.49
Belgium	7	.76			7	.76
Holland	9	.98			9	.98
Denmark	69	7.48			69	7.48
Norway	49	5.31			49	5.31
Sweden	129	13.98			129	13.98
Germany	743	80.53			743	80.53
Switzerland	63	6.83			63	6.83
Austria	65	7.05			65	7.05
Bohemia	20	2.17			20	2.17
Hungary	10	1.08			10	1.08
Poland	12	1.30			12	1.30
Russia	41	4.44			41	4.44
Finland	3	.33			3	.33
Italy	10	1.08			10	1.08
Other countries	14	1.52	1	.11	15	1.63
Total foreign	2,371	256.99	5	.54	2,376	257.53
Total	8,433	914.05	793	85.95	9,226	1,000.00

TABLE XX.—Average height, weight, and chest measure of 9,226 recruits accepted

Age.	Whole number accepted.					Average height (in inches).				
	White.			Col- ored.	Total white and col- ored.	White.			Col- ored.	Total white and col- ored.
	Na- tive.	For- eign born.	Total.			Na- tive.	For- eign born.	Total.		
16	8	.....	8	1	9	66.53	.....	66.53	63.25	66.17
17	19	.....	19	1	20	66.64	.....	66.64	64.75	66.55
18	1	.....	1	.....	1	64.00	.....	64.00	.....	64.00
19	8	.....	8	.....	8	68.25	.....	68.25	.....	68.25
Under 20 (average, 17.2)	36	.....	36	2	38	66.90	.....	66.90	64.00	66.75
20	7	.....	7	.....	7	68.79	.....	68.79	.....	68.79
21	1,556	167	1,723	99	1,822	67.75	67.04	67.68	67.34	67.66
22	642	112	754	53	807	67.66	67.13	67.59	67.26	67.56
23	516	81	597	40	637	67.90	67.54	67.85	67.30	67.82
24	522	167	689	59	748	67.94	67.37	67.80	67.54	67.78
20 to 24 (average, 22.1)	3,243	527	3,770	251	4,021	67.79	67.24	67.71	67.37	67.69
25	434	156	590	53	643	67.69	67.12	67.54	67.80	67.56
26	431	164	595	63	658	67.93	67.26	67.74	67.79	67.75
27	319	157	476	58	534	67.96	67.49	67.80	67.35	67.75
28	262	110	372	37	409	67.50	67.98	67.63	67.91	67.67
29	209	93	302	35	337	67.77	67.20	67.60	67.94	67.63
25 to 29 (average, 26.7)	1,655	680	2,335	246	2,581	67.78	67.39	67.67	67.73	67.67
30	134	108	242	21	263	67.68	67.31	67.52	67.45	67.51
31	129	115	244	37	281	67.59	67.40	67.50	67.70	67.53
32	94	92	186	31	217	67.79	66.99	67.39	67.81	67.45
33	68	80	148	8	156	67.60	67.12	67.34	67.50	67.35
34	82	84	166	15	181	67.71	66.93	67.31	67.67	67.34
30 to 34 (average, 31.7)	507	479	986	112	1,098	67.67	67.17	67.43	67.67	67.45
35	78	68	146	18	164	67.98	67.34	67.68	67.35	67.64
36	52	71	123	22	145	67.48	67.07	67.25	67.34	67.26
37	71	96	157	22	179	67.51	66.96	67.21	67.32	67.22
38	67	59	126	16	142	67.98	67.37	67.70	67.00	67.62
39	37	52	89	16	105	67.73	67.58	67.64	68.11	67.71
35 to 39 (average, 36.8)	305	336	641	94	735	67.75	67.23	67.48	67.41	67.47
40 to 49 (average, 43.8)	267	278	545	71	616	67.42	66.81	67.11	67.75	67.18
50 and over (average, 52.5)	49	71	120	17	137	66.92	66.63	66.75	67.76	66.88
16 and over (average, 27.6)	6,062	2,371	8,433	793	9,226	67.75	67.20	67.59	67.56	67.59

during the year 1897 (native white, 6,062; foreign-born white, 2,371; colored, 793).

Average weight (in pounds).					Average chest measure (in inches).											
White.			Colored.	Total white and colored.	White.								Colored.		Total white and colored.	
Native.	Foreign born.	Total.			Native.		Foreign born.		Total.							
					Ex- pira- tion.	In- pira- tion.	Ex- pira- tion.	In- pira- tion.	Ex- pira- tion.	In- pira- tion.	Ex- pira- tion.	In- pira- tion.	Ex- pira- tion.	In- pira- tion.		
122.75	.....	122.75	125.00	123.00	30.56	33.44	.....	.....	30.56	33.44	31.75	34.00	30.69	33.50
128.32	.....	128.32	137.00	128.75	31.70	34.58	.....	.....	31.70	34.58	32.00	34.50	31.71	34.58
125.00	.....	125.00	.....	125.00	32.00	34.50	.....	.....	32.00	34.50	.....	.....	32.00	34.50
141.25	.....	141.25	.....	141.25	32.03	35.31	.....	.....	32.03	35.31	.....	.....	32.03	35.31
129.86	.....	129.86	131.00	129.92	31.53	34.49	.....	.....	31.53	34.49	31.88	34.25	31.55	34.48
143.71	.....	143.71	.....	143.71	32.43	35.43	.....	.....	32.43	35.43	.....	.....	32.43	35.43
143.05	141.60	142.91	145.26	143.04	33.82	36.80	33.96	36.82	33.83	36.80	33.72	36.50	33.83	36.79		
144.33	143.82	144.25	146.75	144.42	34.05	37.07	34.25	37.29	34.08	37.11	33.64	36.36	34.05	37.06		
145.48	144.30	145.32	148.08	145.49	34.19	37.19	34.35	37.33	34.21	37.21	33.90	36.95	34.19	37.19		
146.86	146.80	146.85	149.32	147.04	34.22	37.27	34.61	37.69	34.31	37.39	33.90	36.56	34.28	37.31		
144.30	144.14	144.28	146.98	144.45	33.92	36.99	34.29	37.27	34.04	37.03	33.77	36.56	34.01	37.00		
145.50	146.38	145.73	147.87	145.19	34.22	37.26	34.66	37.71	34.33	37.39	34.01	36.66	34.31	37.32		
148.30	146.24	147.73	148.92	147.85	34.34	37.40	34.58	37.55	34.40	37.43	34.14	36.91	34.38	37.39		
147.55	148.31	147.80	150.43	148.09	34.46	37.42	34.86	37.94	34.59	37.59	34.24	37.05	34.55	37.53		
147.52	145.73	146.99	151.64	147.40	34.52	37.57	34.83	37.80	34.61	37.64	34.56	37.42	34.60	37.62		
149.10	149.63	149.26	151.71	149.52	34.51	37.60	34.77	37.88	34.59	37.68	34.33	37.07	34.57	37.62		
147.40	147.13	147.32	149.85	147.56	34.32	37.42	34.73	37.76	34.48	37.52	34.22	36.99	34.46	37.51		
150.09	147.28	148.83	149.62	148.90	34.60	37.65	34.84	37.88	34.71	37.75	34.24	36.81	34.67	37.67		
147.77	150.79	149.19	155.81	150.06	34.50	37.48	35.00	38.12	34.74	37.79	34.97	37.47	34.77	37.74		
150.83	146.00	148.44	160.13	150.11	34.69	37.80	34.83	37.72	34.76	37.76	35.31	37.97	34.84	37.97		
148.59	148.06	148.30	151.25	148.46	34.46	37.47	34.69	37.83	34.59	37.67	34.69	37.19	34.60	37.64		
154.12	146.88	150.10	153.27	150.36	35.09	38.03	34.82	37.82	34.96	37.92	34.67	37.07	34.93	37.85		
150.09	147.81	148.98	135.18	149.61	34.65	37.67	34.85	37.89	34.75	37.78	34.87	37.41	34.76	37.74		
156.97	152.59	154.93	151.22	154.52	35.20	38.20	35.46	38.45	35.32	38.31	34.33	37.03	35.20	38.17		
151.13	148.80	149.79	146.00	149.21	34.74	37.90	34.88	37.80	34.82	37.84	34.43	37.00	34.81	37.71		
151.51	147.10	149.08	144.50	148.52	34.77	37.69	34.93	37.96	34.86	37.84	34.50	37.38	34.82	37.80		
155.61	149.49	152.75	161.50	153.73	35.29	38.13	36.15	38.94	35.71	38.50	35.13	37.91	35.64	38.44		
150.57	148.87	149.57	156.56	150.64	35.00	37.99	34.79	37.70	34.88	37.82	34.89	37.72	34.88	37.81		
153.64	149.26	151.34	151.09	151.31	35.02	37.92	35.21	38.16	35.13	38.08	34.63	37.37	35.06	37.99		
153.27	151.79	152.52	154.13	152.70	35.33	38.19	35.48	38.06	35.41	38.26	34.82	37.59	35.34	38.18		
151.25	150.49	150.80	154.47	151.26	34.85	37.41	35.54	38.25	35.22	37.90	35.07	37.54	35.12	37.86		
146.47	147.55	146.77	150.28	147.07	34.25	37.26	34.84	37.81	34.42	37.53	34.28	37.01	34.42	37.38		

INTERNATIONAL TABLE I.—*Examination of recruits during the year 1897.*

No.		White.	Colored.	Total.
1	Total number of recruits examined	12, 131	1, 008	13, 139
2	Of each thousand of these—			
3	Were accepted for service	695. 16	786. 71	702. 19
4	Were rejected for under height	4. 37	1. 98	4. 19
5	Were rejected for disabilities	267. 17	194. 44	261. 50
6	Of each 1,000 accepted recruits the heights were as follows (in inches):			
7	Under 61 .....	. 24		. 22
8	61 to 62 .....	. 36	1. 26	. 43
9	62 to 63	1. 19		1. 08
10	63 to 64	7. 59	18. 92	8. 56
11	64 to 65	76. 01	73. 14	75. 77
12	65 to 66	126. 53	107. 19	124. 87
13	66 to 67	176. 69	181. 59	177. 11
14	67 to 68	184. 51	204. 29	186. 21
15	68 to 69	164. 59	158. 89	164. 10
16	69 to 70	124. 15	117. 28	123. 56
17	70 to 71	74. 94	76. 92	75. 11
18	71 to 72	36. 76	26. 48	35. 88
19	72 to 73	16. 48	17. 65	16. 58
20	73 to 74	7. 47	16. 09	7. 70
21	74 upward	2. 49	6. 30	2. 82
22	Causes of rejection (exclusive of under height) expressed in ratios per 1,000 of examined recruits:			
23	Physical debility .....	. 33		. 30
24	Tuberculosis of lungs or other organs	1. 57	. 99	1. 52
25	Imperfect vision	38. 17	17. 86	36. 61
26	Heart disease	18. 30	12. 89	17. 89
27	Goiter .....	. 41		. 38
28	Varicose veins, varicocoele, hemorrhoids	33. 38	14. 88	31. 97
29	Hernia	5. 19	6. 94	5. 33
30	Flat feet	3. 79		3. 50

INTERNATIONAL TABLE II.—*Movements of sick by departments. (a)*

	Mean strength.	Admitted sick.			Sick disposed of.				Total days sick.
		To quar- ters.	To hos- pital.	T o t a l admis- sions.	Returned to duty (re cov- ered).	Died. &	Other- wise dis- posed of.	Total.	
Department of the East	7, 478	3, 552	6, 212	9, 764	9, 386	23	300	9, 708	98, 760
Department of the Missouri	4, 057	2, 185	2, 758	4, 943	4, 801	11	118	4, 930	54, 500
Department of Dakota	2, 363	1, 064	1, 291	2, 355	2, 225	6	85	2, 316	29, 082
Department of the Platte	2, 474	1, 097	2, 157	3, 254	3, 176	16	59	3, 251	32, 728
Department of Texas	1, 063	1, 059	1, 547	2, 606	2, 512	6	74	2, 592	24, 587
Department of the Colorado	2, 914	1, 681	2, 130	3, 811	3, 708	7	97	3, 812	37, 896
Department of California	1, 490	237	997	1, 234	1, 178	4	45	1, 227	14, 096
Department of the Columbia	1, 367	288	808	1, 096	1, 056	3	31	1, 090	12, 038
General hospital, and at large	37	.....	16	16	68	1	37	106	8, 545
The Army	23, 843	11, 163	17, 916	29, 079	28, 110	76	846	29, 032	312, 232

	In 1,000 of mean strength.			In 1,000 sick disposed of.			Average days sickness to each person.	
	T o t a l admis- sions.	Admis- sions to hospi- tal.	Deaths.	Return- ed to duty.	Died.	Other- wise dis- posed of.	Of mean strength.	Of total sick dis- posed of.
Department of the East	1, 305. 70	830. 70	2. 94	966. 83	2. 27	30. 90	13. 21	10. 17
Department of the Missouri	1, 218. 39	679. 81	2. 71	973. 83	2. 23	23. 94	13. 43	11. 05
Department of Dakota	996. 62	546. 34	2. 54	960. 71	2. 59	36. 70	12. 31	12. 56
Department of the Platte	1, 315. 28	871. 87	6. 47	976. 93	4. 92	18. 15	13. 23	10. 07
Department of Texas	1, 567. 05	930. 25	3. 61	969. 14	2. 31	28. 55	14. 79	9. 49
Department of the Colorado	1, 307. 82	730. 96	2. 40	972. 72	1. 84	25. 44	13. 01	9. 94
Department of California	828. 19	699. 13	2. 68	960. 07	3. 26	36. 67	9. 46	11. 49
Department of the Columbia	801. 76	591. 08	2. 19	968. 81	2. 75	28. 44	8. 81	11. 04
General hospital, and at large	432. 43	432. 43	27. 03	641. 51	9. 43	349. 06	.....	80. 62
The Army	1, 219. 60	751. 41	3. 19	968. 24	2. 62	29. 14	13. 10	11. 07

a Officers and citizen employees not included.

b Exclusive of suicides and fatal accidents.

INTERNATIONAL TABLE III.—*Movements of sick by branches of military service and by months.*

ARM OF SERVICE.	Absolute numbers.						Proportions per 1,000.				
	Mean strength.	Sick admissions.		Sick disposed of.			In 1,000 of mean strength there were—			In 1,000 sick disposed of there were—	
		Total.	To hospital.	Total.	As fit for duty (recovered).	By death.	Totalsick admissions.	Admissions to hospital.	Deaths.	Fit for duty (recovered).	Deaths.
Infantry	12,140	13,869	8,676	13,856	13,376	36	1,142.43	714.66	2.97	965.36	2.60
Cavalry	5,705	8,159	4,731	8,157	7,941	21	1,430.15	829.27	3.68	973.52	2.57
Artillery	3,689	5,218	3,445	5,193	5,048	10	1,414.47	933.86	2.71	972.08	1.93
Ordnance	555	580	128	573	547	3	1,045.05	230.62	5.42	954.63	5.24
Engineers	457	701	549	699	684	1	1,533.92	1,201.31	2.19	978.54	1.43
Medical Department	674	280	197	284	263	3	415.43	292.29	4.45	926.06	10.56
All others	623	272	190	270	251	2	436.60	304.98	3.21	929.63	7.41
MONTHS.											
January	24,137	2,889	1,890	2,641	2,544	5	119.69	78.30	.21	963.27	1.89
February	24,243	2,523	1,669	2,617	2,547	6	104.07	68.84	.25	973.26	2.29
March	24,235	2,440	1,671	2,388	2,297	6	100.68	68.95	.25	961.89	2.51
April	23,935	2,312	1,484	2,313	2,251	6	96.60	62.00	.25	973.20	2.59
May	24,820	2,342	1,445	2,444	2,353	5	98.32	60.67	.21	962.77	2.05
June	24,909	2,433	1,452	2,404	2,320	11	101.76	60.74	.46	965.06	4.58
July	23,695	2,335	1,340	2,389	2,311	.....	98.54	56.55	.....	967.35	.....
August	23,269	2,482	1,380	2,435	2,364	9	106.67	59.31	.39	970.84	3.70
September	23,602	2,471	1,437	2,400	2,320	6	104.69	60.89	.25	966.67	2.50
October	23,198	2,479	1,423	2,628	2,541	6	106.87	61.35	.26	966.89	2.28
November	23,967	2,191	1,344	2,141	2,083	9	91.42	56.08	.38	972.91	4.20
December	24,092	2,182	1,381	2,232	2,179	7	90.57	57.32	.29	976.25	3.14

INTERNATIONAL TABLE IV.—*Movements of sick by larger garrisons.*

Garrison.	Mean enlisted strength.	In 1,000 of mean strength.			Garrison.	Mean enlisted strength.	In 1,000 of mean strength.		
		Total admissions.	Admissions to hospital.	Deaths.			Total admissions.	Admissions to hospital.	Deaths.
Adams, Fort, R. I.	267	1,737.83	1,258.43	.....	Missoula, Fort, Mont.	259	881.00	652.50	3.86
Apache, Fort, Ariz.	340	870.11	420.59	.....	Monroe, Fort, Va.	507	1,386.59	540.44	5.92
Assiniboine, Fort, Mont.	463	886.02	610.75	4.30	Myer, Fort, Va.	261	1,900.38	1,659.00	7.66
Bayard, Fort, N. Mex.	341	929.62	829.91	5.86	Niobrara, Fort, Nebr.	489	879.35	736.20	6.14
Clark, Fort, Tex.	336	2,250.00	853.93	2.81	Plattsburg Barracks, N. Y.	493	1,068.97	665.31	.....
Columbus Barracks, Ohio	488	1,108.61	926.23	4.10	Presidio of San Francisco, Cal.	710	892.96	887.32	5.63
Crook, Fort, Nebr.	492	1,152.44	790.65	2.03	Reno, Fort, Okla.	327	1,062.57	571.97	3.06
Custer, Fort, Mont.	278	884.89	679.86	3.60	Riley, Fort, Kans.	742	1,517.52	543.12	2.70
D. A. Russell, Fort, Wyo.	438	1,547.95	1,077.63	4.57	Robinson, Fort, Nebr.	383	1,530.03	733.68	7.83
Douglas, Fort, Utah	497	1,774.64	963.78	4.02	Sam Houston, Fort, Tex.	614	1,247.56	944.63	3.26
Grant, Fort, Ariz.	301	1,036.55	561.47	.....	Sheridan, Fort, Ill.	607	909.61	658.54	1.43
Hamilton, Fort, N. Y.	267	715.36	689.14	.....	Sherman, Fort, Idaho.	325	753.85	701.54	.....
Huachuca, Fort, Ariz.	282	1,773.05	758.87	7.09	Sill, Fort, Okla.	363	1,206.61	545.46	2.76
Jefferson Barracks, Mo.	334	1,467.06	1,068.87	2.99	Snelling, Fort, Minn.	461	1,028.20	678.96	2.17
Keogh, Fort, Mont.	279	1,659.50	1,023.30	.....	Thomas, Fort, Ky.	432	1,280.09	993.01	2.82
Leavenworth, Fort, Kans.	718	1,289.68	831.48	4.18	Vancouver Barracks, Wash.	524	832.06	501.91	.....
Logan, Fort, Colo.	588	1,404.76	965.98	.....	Washington Barracks, D. C.	278	1,834.53	1,794.97	3.60
Madison Barracks, N. Y.	460	1,258.70	758.09	.....	Wayne, Fort, Mich.	262	835.88	687.03	7.63
McPherson, Fort, Ga.	434	1,297.24	447.00	6.91	West Point, N. Y.	329	1,349.55	1,151.98	3.04
Meade, Fort, S. Dak.	453	1,693.15	1,251.66	11.04	Willeys Point, N. Y.	408	1,308.82	985.80	2.45

INTERNATIONAL TABLE V.—*Movements of sick, according to most important diseases.*

No.	Diseases of the international nosological table.	Remaining under treatment at close of year 1896.	Admitted in 1897.		Total remaining and admitted.		Disposed of in 1897.				Total days sick in 1897.	In 1,000 of mean strength.		In 1,000 disposed of.			Sick days to each case of the total disposed of.
1	Alcoholismus acutus, including delirium tremens.	6	666	672	666	637	2	24	663	9	2,814	27.93	.08	960.78	3.02	36.20	4.24
2	Bronchitis acuta.	36	1,396	1,432	1,386	1,386		13	1,399	33	6,879	58.55		990.71		9.29	4.92
3	Cholera asiatica.		65	65	65	65			65		191	2.73		1,000.00			2.94
4	Cholera nostras.		11	12	12	12			12		278	4.40		1,000.00			23.17
5	Dysentery.	1	50	52	49	49			51	1	879	2.10		960.78		39.22	17.24
6	Diphtheria et croup.	2	28	30	26	26			28	2	533	1.17		928.57		71.43	19.04
7	Erysipelas.	10	1,769	1,779	1,741	1,741	25	1,766	1,766	13	10,404	74.19		965.85		14.15	6.89
8	Febris intermittens (malaria).	4	1,185	1,189	1,145	1,145	8	1,153	1,153	6	3,353	6.50		947.71		52.29	21.92
9	Febris recurrens.	83	1,323	1,406	1,242	1,242	75	1,317	1,317	89	29,223	65.49		943.05		96.95	22.19
10	Gonorrhoea.	15	80	95	65	65	12	77	65	18	5,351	3.86		844.15		155.83	68.20
11	Hernia.	26	1,722	1,748	1,709	1,709	2	24	1,735	13	10,455	72.22	.08	985.02	1.15	13.83	6.03
12	Influenza.		2	22	19	19		1	22		102	.82	.08	893.63	90.91	45.46	4.64
13	Insolatio (hitzschlag, coup de chaleur).																
14	Meningitis cerebrospinalis epidemica.		2	2	2	2			2	341	1.08			944.18		55.82	16.57
15	Morbilli.	6	222	228	203	203		12	215	13	3,931	9.31		868.25		31.75	13.81
16	Parotitis epidemica.	2	67	69	61	61		2	63	6	870	2.81		908.25		97.80	34.81
17	Pneumonia crouposa sive lobaris.	4	61	65	51	51	4		59	6	2,054	2.56	.17	864.40	67.80	97.80	30.15
18	Rheumatismus articulorum.	18	339	367	290	290	25	324	33	33	12,684	14.22		922.84		77.16	45.75
19	Scarlatina.		5	5	4	4			4	1	183	.21		1,000.00			
20	Scorbutus.																
21	Syphilis.	23	305	328	264	264		39	303	25	11,120	12.79		871.29		198.71	36.70
22	Trachoma.		2	2	2	2			2					1,000.00			16.50
23	Tuberculosis pulmonum.	10	47	57	9	9	7	32	48	9	4,873	1.97	.29	187.51	145.82	606.67	101.52
24	Tuberculosis ceterorum organorum.	1	21	22	10	10	7	2	19	3	1,961	.89	.29	526.32	368.45	105.23	71.63
25	Typhus abdominalis.	22	152	174	134	134	8	8	150	34	8,167	6.37	.34	893.34	53.33	53.33	54.45
26	Typhus exanthematicus.																
27	Varicella.		1	1	1	1			1		15	.04		1,000.00			15.00
28	Morbi auris.	6	164	170	156	156		10	166	4	2,284	6.88		939.76		60.24	13.76
29	Morbi cordis.	11	72	83	50	50	1	37	78	5	1,998	3.02	.04	947.28	12.82	346.16	25.62
30	Morbi cutis.	44	1,797	1,841	1,785	1,785	23	23	1,808	33	15,004	75.37		987.28		12.72	8.30
31	Morbi mentis.	34	1,361	1,394	1,372	1,372	6	91	1,389	23	12,068	57.04	.25	929.25	4.38	68.37	8.80
32	Morbi oculi.	10	360	400	372	372		17	389	11	4,272	16.36		956.30		43.70	10.98
33	Morbi systemat. urin. et sexual. (excl. ven. et syph.).	13	227	240	208	208	3	14	225	15	5,812	9.52	.13	924.45	13.33	62.22	25.85

INTERNATIONAL TABLE VI.—Admissions of important diseases by branches of military service.

No.	Diseases of the international nosological table.	Absolute number of admissions.						Admissions per 1,000 of mean strength.							
		Infantry.	Cavalry.	Artillery.	Ordnance.	Engineers.	Hospital	All others.	Infantry.	Cavalry.	Artillery.	Ordnance.	Engineers.	Hospital	All others.
1	Alcoholismus acutus, including delirium tremens.	439	69	98	9	35	4	12	36.16	12.10	26.57	16.22	76.59	5.93	19.28
2	Bronchitis acuta.	730	364	210	39	35	8	10	60.14	63.81	56.93	70.27	76.59	11.87	16.05
3	Cholera asiatica.														
4	Cholera nostras.	11	23	21	8		2		.91	4.03	5.69	14.41		2.97	
5	Diphtheria et croup.	6	3					1	.49	.58		1.80			1.61
6	Dysenteria.	18	15	15	1				1.48	2.63	4.07	1.80		1.48	1.61
7	Erysipelas.	20	1	3	2			1	1.65	.18		3.60			
8	Febris intermittens (malaria).	390	535	583	49	157	21	34	32.12	93.78	158.03	88.29	343.54	31.16	54.57
9	Febris recurrens.	66	43	36	3	3	3	2	5.44	7.86	9.76	5.41	6.56	4.45	3.21
10	Gonorrhoea.	687	373	227	2	14	5	15	56.59	65.39	61.54	3.60	30.64	7.42	24.08
11	Hernia.	36	18	14	4	5	2	1	2.97	8.15	3.80	7.21	10.94	2.97	1.61
12	Infans (hitzeschlag, coup de chaleur).	674	616	313	60	10	34	15	58.52	107.98	84.84	108.12	21.88	50.44	24.08
13	Meningitis cerebrospinalis epidemica.	2	8		1				1.07	1.40		1.80			
14	Morbilli.	90	48	76			5	3	7.41	8.41	20.60			7.42	4.82
15	Parotitis epidemica.	39	1	15	1	6	3	2	3.21	.18	4.07	1.80	13.13	4.45	3.21
16	Pneumonia crouposa sive lobaris.	34	14	9				2	2.80	2.44	2.44	3.60			
17	Rheumatismus articulorum.	191	85	37	9	7	5	5	15.79	14.90	10.03	16.22	15.32	7.42	8.03
18	Scarlatina.	2		3					.16		.81				
19	Scorbutus.														
20	Syphilis.	178	73	44	3	4	2	1	14.66	12.80	11.93	5.41	8.75	2.97	1.61
21	Typhoidea.	2													
22	Tuberculosis pulmonum.	24	12	5	2	2	1	1	1.98	2.10	1.36	3.60	4.88	1.48	1.61
23	Tuberculosis ceterorum organorum.	7	8	2			2	2	.58	1.40	.54			2.97	3.21
24	Typhus abdominalis.	76	43	28	2		2	1	6.28	7.54	7.59	3.60		2.97	1.61
25	Typhus exanthematicus.														
26	Varicella.	1							.08						
27	Morbi auris.	78	37	31	11	4	1	2	6.43	6.49	8.40	19.82	8.75	1.48	3.21
28	Morbi cordis.	36	18	11	1	4	1	1	2.97	3.15	2.98	1.80	8.75	1.48	1.61
29	Morbi cutis.	743	564	370	27	46	7	10	61.21	104.12	100.29	46.65	100.65	10.39	16.05
30	Morbi mentis.	806	211	227	33	47	14	22	38.98	36.98	61.54	59.46	102.85	20.77	35.31
31	Morbi oculi.	200	123	40	12	7	3	5	16.47	21.56	10.84	21.62	15.82	4.45	8.03
32	Morbi systemat. urin. et sexual. (excl. ven. et syph.).	127	54	31	6	7	1	1	10.46	9.46	8.40	10.81	15.32	1.48	1.61

INTERNATIONAL TABLE VII.—Admissions of important diseases, by months (absolute numbers).

No.	Diseases of the international nosological table.	Admissions, by months.											
		Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	Alcoholismus acutus, including delirium tremens.....	45	59	62	73	66	65	40	70	46	49	40	51
2	Bronchitis acuta.....	277	150	111	129	58	48	39	49	63	107	181	184
3	Cholera asiatica.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	Cholera nostras.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	Diphtheria et croup.....	2	3	2	2	9	7	21	11	8	2	4	1
6	Dysentery.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	Erysipelas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	Febris intermittens (malaria).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	Febris recurrens.....	28	32	47	97	185	220	199	207	276	251	133	84
10	Gonorrhoea.....	128	108	111	96	5	7	26	29	28	19	24	13
11	Hemiplegia.....	7	11	4	7	8	104	93	108	120	128	114	109
12	Influenza.....	614	591	306	76	24	9	10	7	8	5	4	7
13	Infectio (hitzechlag, coup de chaleur).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	Meningitis cerebrospinalis epidemica.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	Morbilli.....	14	8	74	46	26	15	3	.....	.....	.....	.....	.....
16	Parotitis epidemica.....	16	9	11	11	2	.....	.....	.....	.....	.....	.....	.....
17	Pneumonia cronica sive lobaris.....	7	17	13	6	1	2	1	4	1	1	.....	.....
18	Rheumatismus articulorum.....	29	47	42	49	33	28	24	18	25	20	10	16
19	Scarlatina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Scorbutus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	Syphilis.....	35	23	18	30	31	17	22	28	19	27	28	27
22	Trachoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Tuberculosis pulmonum.....	9	5	4	6	5	4	1	1	4	4	4	1
24	Tuberculosis ceterorum organorum.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	Typhus abdominalis.....	5	2	2	2	4	1	.....	2	.....	1	1	1
26	Typhus exanthematicus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Varicella.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	Morbi acuti.....	28	17	10	12	15	15	18	13	8	15	5	8
29	Morbi acuti.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	Morbi acuti.....	125	108	127	123	180	184	165	180	176	151	146	132
31	Morbi acuti.....	111	119	118	142	117	135	107	122	92	103	99	95
32	Morbi acuti.....	29	31	64	60	46	38	84	27	16	23	23	19
33	Morbi systemat. urin. et sexual (excl. ven. et syph.).....	14	21	26	22	18	9	20	20	12	21	28	16

INTERNATIONAL TABLE VIII.—Deaths according to years of service and age.

Causes of death.	Deaths.				
	Years of service.		Ages.		
	First year.	Second year and over.	Twentieth to twenty-fifth year.	Twenty-sixth to thirtieth year.	Thirty-first year and over.
Diseases	14	57	18	22	31
Suicides <i>a</i>		10	1	2	7
Accidents and injuries	8	44	12	18	22
Total	22	101	30	40	58

a Included in other classifications.

THE WORK OF THE MEDICAL DEPARTMENT DURING THE SPANISH WAR.

The annual report of the Surgeon-General, rendered usually late in September, presents the medical and surgical statistics of the Army for the previous calendar year, the financial statements of the Surgeon-General's Office for the previous fiscal year, and those subjects of interest or importance in sanitary administration that have been under consideration up to the date of the report. The medical and surgical statistics of the calendar year 1897 and the financial transactions of the office for the fiscal year ended June 30, 1898, have been submitted above; but I find it impossible at the present time to present a full and complete discussion of the important events of recent occurrence in which the Medical Department has been concerned. This can not be done until the reports from the various regiments and field and general hospitals have been gathered in, tabulated, and studied. I purpose, however, giving a general view of the salient points of these occurrences and of the work of the Medical Department of the Army in connection therewith.

MEDICAL OFFICERS.

The number of medical officers, 192, allowed by law to the Army is inadequate in time of peace. This number includes the additional 15 assistant surgeons authorized by the act approved May 12, 1898. Later in May there were 13 vacancies; 6 officers were engaged in administrative duties in the office of the Surgeon-General and in the superintendence of the library and the Army Medical Museum, 11 were on duty at medical supply depots and as chief surgeons of military departments, 1 at the United States Soldiers' Home, Washington, D. C.; 56 at general hospitals and at garrisoned posts, 1 as colonel of a volunteer regiment, while 4 were disabled. One hundred officers were thus left for field service, 5 of whom were placed on duty as chief surgeons of Army corps, 36 as brigade surgeons of volunteers, and 59 as regimental surgeons and assistants with the regular troops. The insufficiency of the last-mentioned number was made up by the assignment of medical men under contract.

All volunteer regiments had 3 medical officers appointed by the governors of States. Volunteer surgeons to fill the staff positions authorized by the act approved April 22, 1898, were appointed by the President: Eight corps surgeons with the rank of lieutenant-colonel and 110 division and brigade surgeons with the rank of major; 5 of the former and 36 of the latter positions were filled as indicated above by the appointment of officers of the Army Medical Department. The President also appointed 3 medical officers for each of the regiments of United States volunteer infantry, cavalry, and engineers. The very small proportion of medical officers having experience of a military character impaired the efficiency of the department at the outset, but many of the staff surgeons from civil life showed great aptitude for the service, and speedily became of value as administrative and sanitary officers.

The large number of sick which had to be cared for during the progress of the war in regimental, division, and general hospitals rendered imperative the employment of additional medical assistance. Under the provisions of the act approved May 12, 1898, the services

of over 650 contract surgeons were engaged. Most of these doctors from civil life did good service. Many of them were thoroughly well equipped physicians and surgeons, with ample hospital experience, but it was impossible to make a careful selection owing to the great pressure of business in this office. Since it was impracticable to have the qualifications of each passed upon by an examining board, I endeavored as far as possible to obtain satisfactory professional indorsement before authorizing the contract.

HOSPITAL CORPS.

On April 25, 1898, in connection with the call of the President of the United States for 125,000 volunteers, I recommended that the law restricting the number of hospital stewards to 100 (see p. 14) be changed, and that for each regiment of volunteer infantry or cavalry there should be enlisted 1 hospital steward, 1 acting hospital steward, and 25 privates; for each battery of artillery 1 hospital steward and 5 privates, and for each division of the Army 1 hospital steward, 1 acting hospital steward, and 50 privates, to serve under the direction of the chief surgeon of the division. These recommendations were acted upon so far favorably that by the act approved June 2, 1898, Congress suspended during the existing war all provisions of law limiting the number of hospital stewards at any one time to 100, and requiring that a person to be appointed a hospital steward shall first demonstrate his fitness therefor by actual service of not less than twelve months as acting hospital steward, provided that the increase of hospital stewards under this act shall not exceed 100. In addition to the 200 stewards thus authorized, each volunteer organization received into the service was allowed 1 hospital steward for each battalion (act approved April 26, 1898). There was, however, no provision made for Hospital Corps men for the volunteer troops except that which empowered the Secretary of War (act March 1, 1897) to enlist as many privates of the Hospital Corps as the service may require.

To provide this corps with the necessary number of men recruiting officers were urged to secure suitable men and medical officers to effect the transfer of men from the line of the Army. Letters were sent to superintendents of training schools for male nurses in the prominent cities advising them of the need for desirable men and asking their assistance in securing unemployed nurses. A number of medical students, pharmacists, and young graduates in medicine enlisted in the Hospital Corps for service during the war, and it is believed that the efficiency of the corps was thereby raised considerably.

Recommendation was made May 14, 1898, that mustering officers be instructed to enlist desirable men approved by medical officers at the rate of 5 for each battalion, and subsequently that these be permitted to accompany the regiments on their future service. This recommendation was reiterated June 18 in a communication to the Adjutant-General. Meanwhile General Orders, No. 58, Headquarters of the Army, Adjutant-General's Office, May 31, 1898, authorized the transfer of men from the line of the volunteers to the Hospital Corps of the Regular Army, upon the recommendation of the chief surgeon, and suspended the provisions of Army Regulations governing the Hospital Corps so far as they were inapplicable in time of war and with troops in the field. Commanders of corps and of independent divisions and brigades were charged with the full control of the transfer from the line, the enlistment and discharge of members of the Hospital Corps, the detail of acting hospital stewards, and the

appointment of stewards, the last limited by subsequent orders to 10 stewards for an Army Corps in addition to those authorized for the volunteer regiments. Authority for immediate enlistments, without reference to this office except in cases where slight defects existed, was also given to a number of chief surgeons.

The number of men enlisted and transferred was approximately 6 000

CONTRACT NURSES.

The want of a sufficient body of trained Hospital Corps men necessitated the detail of enlisted men from the regiments for hospital duty in several of the camps and the employment of trained nurses at the general hospitals. Foreseeing the necessity for a large force of the latter, I applied to Congress April 28, 1898, for authority to employ by contract as many nurses as might be required during the war, at the rate of \$30 per month and a ration, the pay proper to be paid from the appropriation for the Medical and Hospital Department. This was promptly granted. About the same time the National Society of the Daughters of the American Revolution offered its services as an examining board for female nurses, and a committee, of which Dr. Anita Newcomb McGee was chairman, was designated to take charge of the work. Thereafter most of the female nurses employed were selected by this committee, with the exception of those immune to yellow fever, who were recruited in New Orleans and other Southern cities, and a few who were enrolled at Montauk Point, Long Island, and Jacksonville, Fla., by the chief surgeons at these places. A number of patriotic societies offered to provide the hospitals with nurses, but the committee referred to answered its purpose so well that I did not feel the need of additional assistance, and was relieved from what would otherwise have been a serious responsibility.

Over 1,700 female nurses have been employed, at first at the general hospitals and later at the field division hospitals, when it became evident that the field service purposes for which the latter had been organized would have to give place to the imperative need of caring for the many sick men coming from the regimental camps. These hospitals ceased to be ambulance hospitals and their character of fixed field hospitals was promptly recognized by assigning contract surgeons and nurses to duty with them and providing them with articles of equipment which can not be carried in the hospital wagons of a marching command. Female nurses were not sent to these field hospitals until their original function as an essential adjunct to a command mobilized for active service became lost in the current of immediate necessities. Many of the trained nurses were Sisters of Charity, whose services were highly appreciated by medical officers in charge, as well as by the individual sick men, who benefited by their ministrations. Others were obtained through the kind assistance of the Red Cross Society for the Maintenance of Trained Nurses, Auxiliary No. 3, and I desire to express my high appreciation of the valuable services rendered to the Medical Department by this organization.

MEDICAL AND HOSPITAL SUPPLIES.

The authorized strength of the Army, April 1, 1898, was a little over 28,000, officers and men. This force was stationed as garrisons at military posts, and while the supplies furnished were more especially adapted to the medical wants of troops serving under such conditions,

there was ample provision for field service, especially at posts where active service against Indians or riot duty was possible. Further than this, it is believed the available medical supplies were sufficient for the then existing Army for any duty, though, necessarily, additions would have to be made in mobilizing for foreign service.

Up to the time that war was declared it was not practicable to take any immediate steps to obtain supplies, as it was not known until that date that the troops would actually be called out, nor were there funds available from which to make purchases. But already, before April 1, in view of the possibility of future needs, orders were given to have the field medical outfits, medical and surgical chests, instruments, etc., at the supply depots put in order for issue in case of need, and early in March the preparation of new pattern medical and surgical chests was begun so as to have them ready for manufacture should the necessity arise.

Immediately upon the declaration of war, April 21, steps were taken to obtain medical supplies for the new Volunteer Army. For the more important articles, and those of highest cost, bids were invited at short notice, such, for instance, as medical and surgical chests, litters and slings, field operating cases, pocket cases, orderly and hospital corps pouches, etc. Orders were given and the manufacture expedited with the utmost dispatch. Requests for proposals for the usual spring purchases had been made in March, but to obtain medicines and other additional supplies, in view of a state of war, advantage was taken of the authority granted by act of Congress and purchases were made in open market, the interests of the Government being guarded by obtaining informal bids when the amount was large and time permitted.

On May 3, foreseeing that it would be impossible to have ready for issue to the volunteer regiments, as soon as they were mustered in, the medical and surgical chests above referred to, as well as other articles of field equipment, although their preparation was pushed with the utmost dispatch, I telegraphed the governors of the several States for authority to utilize the medical equipment of the National Guard in the service of the State Volunteers until our army medical supplies were ready for issue.

Most of the governors of the States who had field equipment responded promptly and satisfactorily, but, unfortunately, many of the State medical departments had no such equipment. These deficiencies were supplied by the issue of the advance field regimental outfits referred to hereafter. Most of the State field medical equipment so loaned has been, or probably will be, eventually paid for by the United States.

Meanwhile the officers in charge of the medical supply depots in New York and St. Louis were directed to make arrangements so that supplies could be immediately obtained for 100,000 men for six months.

As the supply table published in 1896 was prepared for garrison use in time of peace and was inappropriate for the use of troops in the field, a field supply table was prepared and approved by the Secretary of War May 9, 1898. This supply table specifies the contents of the medical and surgical chests, the hospital corps and orderly pouches, field operating, surgeons' field and pocket cases, mess chest, food chest, and field desk, and gives the allowance of medicines and disinfectants, hospital stores, stationery, furniture, bedding, clothing, and miscellaneous articles for field hospitals and ambulance trains. It was intended to provide for the needs of commands in

active service where only a limited supply of articles could be carried owing to the necessity of restricting transportation. But as soon as it was evident that the troops were likely to be retained in camps of instruction, notification was given that articles on the regular supply table could also be obtained. On August 12, in Circular No. 6, from this office, I again called attention to this subject, directing chief surgeons of army corps, of divisions, and of smaller commands to make timely requisition for supplies, by telegraph if necessary, and to see that field hospitals in which typhoid fever and other serious cases were treated were liberally supplied with all articles necessary for the treatment and comfort of the sick.

The patterns of the new medical and surgical chests were prepared in this office under my immediate supervision, and the chests for issue were put up at the Army Medical Museum in this city. This was done to insure satisfactory workmanship and prompt delivery.

New patterns for the field operating case had been already fixed upon in the fall of 1897.

New forms of surgical dressings especially designed for field use, composed of sterilized, sublimated, and iodoform gauze; sterilized gauze bandages, absorbent cotton, catgut, and silk, sterilized and packed in convenient envelopes; tow, compressed cotton sponges, and plaster of paris bandages were also prepared under the immediate supervision of this office. Samples of these were sent to the three supply depots, New York, St. Louis, and San Francisco, and all issues directed to be in conformity therewith. Forty boxes of these specially prepared dressings were put up at the temporary supply depot, Army Medical Museum, Washington, D. C., and sent to Tampa, Fla., for the use of the army about to sail for Cuba.

To provide temporarily for volunteer regiments organized and ordered to camps before the new medical and surgical chests were ready for issue, supplies of medicines, instruments, hospital stores, stationery, and miscellaneous articles, according to a prescribed list and packed in convenient boxes, were prepared at the supply depots.

An important article to be provided was the first-aid packet, containing antiseptic dressings for immediate use in emergencies and intended to be carried by each individual soldier. These were promptly and liberally supplied.

Whenever notice was received from the Adjutant-General's Office that commands were to be moved or camps formed, I endeavored to anticipate the wants of the troops by telegraphing the officer in charge of the nearest supply depot to forward supplies for the stated number of men according to the field supply table.

Requests from medical officers for supplies and orders based thereon transmitted to the supply depots were largely by telegraph, and orders were given that when the supplies were needed promptly they should be forwarded by express to their destination. When a medical officer desired to purchase medical and other supplies for use in emergencies authority to do so was always granted.

Extensive purchases of medical supplies were made direct from this office from dealers in Washington, Baltimore, and Philadelphia to provide for the immediate wants of the troops at Camp Alger, Va., and the general hospitals at Fort Myer, Va., Washington Barracks, D. C., and Fort Monroe, Va. This was done not only to meet with promptness the urgent needs of troops and hospitals in this vicinity *but to relieve somewhat the great pressure upon the supply depot at New York.*

In addition to the field-supply table issued May 9, 1898, a revised edition of the Manual for the Medical Department was published. These, together with 2,400 copies of a revised edition of Lieutenant-Colonel Smart's handbook for the Hospital Corps, were freely distributed throughout the Army, so that medical officers might become acquainted with the proper mode of obtaining supplies and their many other important duties.

It is impossible to give a full list of the medical supplies that were provided, no complete report of purchases having as yet been received from the medical-supply depots, but the following will give an idea of the amounts of some of the principal articles:

First-aid packets	number..	272,000
Hospital-corps pouches	do.....	5,797
Orderly pouches	do.....	509
Pocket cases	do.....	962
Surgeons' field cases	do.....	369
Field operating cases	do.....	828
Medical and surgical chests	do.....	1,204
Litters	do.....	2,259
Litter slings	do.....	7,600
Cots and bedsteads, with bedding	do.....	18,185
Blankets, gray	do.....	23,950
Field desks	do.....	440
Quinine pills	do.....	7,500,000
Chloroform and ether	bottles..	13,220
Gauze, sublimated, 1-meter packages	packages..	100,625
Gauze bandages, 3 sizes	number..	331,776

The medical supply depot in New York, Lieut. Col. J. M. Brown in charge, supplied the posts in New England, the Middle States, and along the Atlantic coast, including Florida, and the troops that have been sent to and are now serving in Cuba and Porto Rico. Ordinarily requisitions received from officers serving in the localities mentioned were acted on and sent by the next mail to the depot for issue, but as already stated the telegraph and express companies were brought into use where the necessity called for prompt action.

The pressure on this depot was at times extremely great in supplying the troops sent to Cuba and Porto Rico and the large camps at Falls Church, Va.; Middletown, Pa.; Hempstead and Montauk Point, N. Y., and Jacksonville, Fernandina, and Miami, Fla.

On account of the urgency attending the establishment of Camp Wikoff the officer in charge of the New York supply depot was directed to honor all requisitions made by the chief surgeon at Montauk Point without referring them for approval of this office.

The medical supply depot at St. Louis, Mo., under the charge of Col. J. P. Wright, assistant surgeon-general, United States Army, supplied the States of the Mississippi Valley and region east of the Rocky Mountains, including Texas. The large camp at Chickamauga was supplied entirely from this depot, together with the camps formed at Knoxville, Tenn.; Lexington, Ky.; Anniston, Huntsville, and Mobile, Ala., and New Orleans, La. Many articles were sent from this depot to the supply officer at San Francisco, Cal., for the use of the Philippine expeditions. To provide for the large aggregation of troops at Camp George H. Thomas, Chickamauga, Ga., a subdepot, drawing its supplies from St. Louis, was organized and put under the charge of Maj. E. T. Comegys, surgeon, United States Army. This subdepot was discontinued on the departure of the troops from Camp Thomas. Owing to the distance of the camps at Lexington, Knoxville, Huntsville, and Anniston from this city the chief surgeons of these several

camp were authorized to draw upon the depot at St. Louis for any articles on the supply table without submitting requisitions in advance to this office.

The officers in charge of the depots at New York and St. Louis were directed, July 8, to keep in stock 1,000 iron beds or cots, with a full supply of bedding, ready for immediate issue.

The responsibility of supplying the posts on the Pacific coast and of outfitting the troops leaving for the Philippine Islands was placed upon Lieut. Col. J. V. D. Middleton, deputy surgeon-general, United States Army, in charge of the supply depot at San Francisco, Cal. As much delay and expense of transportation would have been incurred by sending supplies from Eastern depots to San Francisco, Colonel Middleton was authorized to purchase at discretion all necessary medicines, hospital stores, instruments, and miscellaneous supplies of every kind needed for the troops going to Manila. Articles of special manufacture, such as medical and surgical chests, litters, and litter slings, hospital-corps and orderly pouches, and the specially prepared field dressings already referred to, were shipped to San Francisco from St. Louis, not being obtainable on the Pacific coast. The distance of San Francisco from the center of the Government was so considerable that the officer in charge of that depot was necessarily given large discretion in the purchase of supplies and expenditure of funds. Lieutenant-Colonel Middleton deserves great credit for the efficient service rendered by him both as medical supply officer and as chief surgeon of the Department of California.

RAILROAD AMBULANCE TRAIN.

A railroad ambulance train was, in my opinion, essential to the well-being of the sick and wounded during transportation from Tampa, Fla., the probable base of operations against Cuba, to general hospitals in the interior. Accordingly, on May 30, 1898, I recommended the equipment of a train to consist of ten tourist sleepers and a dining car. This was approved, and on June 16 I was informed that a train of ten Pullman sleepers, a dining car, a private car, and a combination car was ready for service. The train was inspected by Maj. Charles Richard, surgeon, United States Army, who was placed in command. One assistant surgeon, 2 stewards, 20 privates of the Hospital Corps, and 3 civilian employees were assigned to him for service. The train was amply provided with all the medicines, hospital stores, and comforts required for the patients to be transported. The first trip made was from Washington, D. C., to Tampa, Fla., for the purpose of transporting sick from the latter place to the general hospital, Fort McPherson, Ga. Tampa was reached June 19, and Fort McPherson June 22. Here the Pullman cars were exchanged for the tourist sleepers originally requested. The latter were much better adapted for hospital purposes on account of their general arrangement, better ventilation, and convenience for cleanliness and the handling of patients. They had 134 lower and 136 upper berths, giving a total carrying capacity of 270. It was impracticable, however, to use the upper berths for severe cases, on account of the impossibility of giving proper care and attention to such patients occupying them.

Several trips were made between Tampa and Atlanta, on each of *which great delay, involving inconvenience and anxiety to all concerned, and discomfort and even harm to the sick, was occasioned by*

the difficulty of obtaining a prompt response from local quartermasters to requisitions for the necessary transportation. On one occasion, after a delay of twenty-four hours, telegraphic communication with Washington had to be established before a movement was made. However, on July 4, Capt. H. R. Stiles, assistant surgeon, United States Army, on duty with the train, was appointed an acting assistant quartermaster, with authority to issue transportation requests. Major Richard reported of this:

Not only has this change given me more time to attend to the more important functions of my charge, and has avoided many vexatious delays, but it has enabled me to come in direct communication with the railroads and a better understanding is reached regarding speed, routes and care of train en route, all of which factors should be considered in a service which has for its object the comfortable and rapid transportation of the sick and wounded.

On July 9 the hospital train met the transport *Cherokee* at Port Tampa, Fla., on her return from Santiago with 323 sick and wounded; removed 87 that same night to the hospital on Tampa Heights, and on the following day left for Atlanta with 235 patients. This number, together with the Hospital Corps detachment and civilians, taxed the capacity of the train to its utmost, especially in the way of serving meals, but all wants were fully supplied. During this trip, while the engine was taking on water, the hospital train was struck in the rear by a passenger train. A caboose on the rear of the train was completely shattered; the private car used by the medical officers was so badly injured as to necessitate its abandonment, and many of the platforms were splintered, while the sick and wounded were severely shaken up by the collision, but fortunately no serious casualty resulted.

During the latter part of July excessive heat and dust rendered a trip from Tampa to Newport, Ky., extremely trying to the sick, and largely contributed to the fatal ending of two cases en route. A large proportion of the total number of cases transported were of typhoid fever, usually in the first week of the disease. Under certain circumstances the loading of the train at night was necessary, and in one instance loading was completed during a severe rain storm. Up to August 31 the hospital train had run about 17,500 miles and transported 1,935 patients with only four deaths.

Notwithstanding the large number of typhoid cases transported and the difficulty of handling such cases on this train, disinfection was so efficiently carried out that no case of this disease occurred among the personnel of the train. The utmost care was given to the disinfection of excreta to prevent any danger of the dissemination of the disease during the transportation of the sick.

HOSPITAL SHIPS.

The hospital ship Relief.—On April 15, 1898, I applied for a ship to be used as a hospital ship. After an inspection had been made of various ships offered I recommended, April 23, the purchase of the steamship *John Englis* as well adapted for the purpose in view—a floating hospital for the care of the sick and wounded at any point on the Cuban coast, for their transportation to any point on our own coast, and to act at the same time as a depot of reserve medical supplies for troops in the field. This recommendation was not approved at the time, and various other ships were inspected, but none found to be suitable. On May 18, by direction of the President, the *John Englis* was purchased, and the Quartermaster's Department took

charge of her to prepare her for the special service required. Maj. George H. Torney, surgeon, United States Army, was directed to make recommendations with reference to necessary alterations and apparatus, and was subsequently placed in command of the ship. The necessary work upon the vessel required much more time than was anticipated.

On June 12 I wrote to Major Torney:

The hospital ship will be required at the earliest possible moment to go to Santiago, where you are likely to have plenty of sick and wounded men awaiting your arrival. I trust that you will do everything in your power to have the ship ready for orders at the earliest possible moment. Be sure to get everything on board as soon as possible, for when you get your orders we want no delay on the ground that certain articles for which requisition has been made are not yet on board ship.

Again, on June 22, I wrote:

You will do everything in your power to expedite the work upon the hospital ship *Relief*, and when she is ready for sea report to me by telegraph. Upon receiving telegraphic orders to that effect you will proceed directly to Santiago de Cuba, reporting your arrival to the commanding general at that point. Your ship should be anchored in a safe harbor at such point as may be designated by the proper authorities, and as near as possible to the seat of active operations. You will receive on board up to the full capacity of the ship the sick and wounded of the Army and Navy and care for them exactly as if they were in a general hospital. The *Relief* is regarded as a United States general hospital, and you will be expected to make such reports and returns as are required by regulations for a general hospital. Your attention is especially invited to Army Regulations, 1433, and should anyone attempt to exercise unauthorized authority over you or your ship you will invite their attention to this regulation. When in your judgment or that of the commanding general or the chief surgeon of the troops at whatever point you may be located it is desirable that you should proceed to a home port for the purpose of landing the sick and wounded, you will, if practicable, communicate with me by telegraph, and orders will be sent you designating the port for which you should sail. If it is not practicable to communicate with me by telegraph you should apply to the commanding general of the troops for orders to proceed to such home port as may seem desirable, and immediately upon your arrival you should communicate with me by telegraph in order that arrangements may be made to transfer the sick and wounded to a general hospital. You will issue medical supplies upon properly approved requisitions to troops in the field, and will do everything in your power to aid the medical officers with these troops in providing for the comfort of the sick by the issue of ice, hospital stores, and such delicacies as you may have at your disposal. When practicable, you will send to me once a week a telegraphic report showing the number of patients of the Army and of the Navy on board the hospital ship. You should make timely requisition for necessary supplies for use on the ship and for issue to the troops in the field.

Further instructions were sent June 27:

You should keep in view the fact that the *Relief* is a well-equipped floating hospital and a depot of supplies for troops in the field. It is important, therefore, that she should not be taken away from the scene of active operations unless it is absolutely necessary for the purpose of landing the sick and wounded at a home port. You should avail yourself of every opportunity to send proper cases by the navy ambulance ship, the *Solace*, or by army transports returning to home ports. As a rule, the more serious cases of injury and sickness should be retained on your ship, as the disturbance incident to a sea voyage would be injurious to them. Convalescents and those sick and wounded who can be transported without injury to themselves, and who are not likely to be fit for duty within a short time, should be sent to a home port whenever an opportunity offers.

The *Relief* sailed from New York July 2 and arrived at Siboney on the 7th. She left Siboney July 19 with 254 sick and wounded and arrived at New York on the 23d. She sailed for Ponce, Porto Rico, August 3, and returned to New York on the 19th with 255 sick and wounded. The vessel made another trip to Ponce, Porto Rico, return-

ing with sick, September 6, to Philadelphia, whence she went to Montauk Point to transport sick to hospitals in Boston, Mass., and Philadelphia, Pa. Another trip to Porto Rico was then made, the vessel returning October 11 to Fort Monroe, Va.

The hospital ship Missouri.—On July 1, 1898, Mr. B. N. Baker, president of the Atlantic Transport Line, Baltimore, Md., tendered the steamship *Missouri*, with her captain and crew, to the Government as a hospital ship. This generous and patriotic offer was accepted by the Secretary of War, and Maj. W. H. Arthur, surgeon, United States Volunteers (assistant surgeon, United States Army), was ordered to take charge of her preparation for service and subsequently to command her. It was recognized that considerable refitting would be required before the vessel could be utilized. Ten days or two weeks was the period estimated as needful to permit of making the necessary alterations and providing the vessel with a steam laundry, steam sterilizing apparatus, and ice and carbonating plants, but it was not until August 23 that the ship was reported ready to sail, and even then a good deal of work had to be done on board during a stormy passage to Santiago. She returned from Cuba with 256 sick men, who were landed at Montauk Point. Her second voyage was to Porto Rico, whence she brought 270 patients to the Josiah Simpson Hospital, Fort Monroe, Va., on October 6.

The hospital ship Olivette.—This vessel was a steamship which had been doing service as a water boat for the fleet of transports when Lieutenant-Colonel Pope, chief surgeon of the Fifth Army Corps, selected her for use as a hospital ship during the voyage from Tampa, Fla., to Santiago, Cuba. The equipment of one of the field division hospitals of the corps was used in outfitting her for this work. On the arrival of the fleet at Daiquiri she relieved the transports of their sick, many of whom were later transferred to the steamer *Iroquois*, so that room was made on the improvised hospital boat for the wounded expected from the impending battle. The *Olivette* answered her extemporized purpose excellently. She left Santiago July 9 with 279 wounded officers and men and reached New York on the 16th. She returned to Santiago with medical supplies for the troops, and on August 15 sailed with 203 sick men, who were distributed in Boston city hospitals. The *Olivette* sailed August 25 from Boston under orders to Fernandina, Fla., for the purpose of bringing sick to the general hospital at Fort Monroe, Va. On August 31, while coaling in stormy weather off quarantine at Fernandina, she listed heavily, filled with water; and sank in 20 feet of water. No loss of life occurred.

THE HEALTH OF THE TROOPS.

Promptly following the declaration of war, arrangements were made by the War Department to recruit the Regular Army to its war strength, and to muster in the volunteer troops called out by the proclamations of the President. The Regular Army at that time consisted of well-developed men, sound in physique, and well drilled and disciplined. In its ranks were only about 40 boys under 21 years of age enlisted as musicians; but when recruiting was begun the minimum age for enlistment in the regulars was reduced to 18 years, and boys of this age were accepted for the volunteers. In my opinion, this reduction of the age limit had a notable influence in increasing the prevalence of disease among the troops. All military experience shows that young men under 21 years break down readily under the

strain of war service; and every regiment had many of these youths in its ranks.

I am of the opinion, also, that the haste with which the volunteer regiments were organized and mustered into the service was responsible for much of the sickness which was reported in the early days of their camp life. Medical examiners were appointed to testify to the physical qualifications of each man before acceptance, but, notwithstanding this, which at the time was characterized in the press as a very rigorous procedure, so many men were afterwards found on the sick lists of the camps unfit for service, from causes existing prior to enlistment, that special arrangements had to be made for their discharge.

Soon after the newly raised levies were aggregated in large camps sickness began to increase progressively from causes that were so general in their operation that scarcely a regiment escaped from their harmful influence. These causes may all be referred to ignorance on the part of officers of the elementary principles of camp sanitation, and of their duties and responsibilities as regards the welfare of the enlisted men in their commands. Officers who were responsible for the clothing and equipment of their men, for their shelter, drill, discipline, and personal cleanliness—in fact, for their comfort, well-being, and sound physical condition—were to a large extent ignorant of how to act in order to sustain their responsibilities, and others were even ignorant that these responsibilities rested on them. Medical officers, as a rule, were also without experience in the sanitation of camps and the prevention of disease among troops. The few who knew what should be done were insufficient to control the sanitary situation in the large aggregations of men hastily gathered together. As a result officers and men appear to me to have regarded the deplorably insanitary conditions under which they lived in their camps of organization as the inevitable conditions of camp life preparatory for field service, and to have accepted them without question until general attention was attracted to them by an outbreak of typhoid fever. Officers and men in these camps were rife for war, and drill, parades, practice marches, and military-camp duties occupied the whole of their time and energies. Considerations of domestic economy and sanitation in the companies and regiments were not given proper consideration, and men who were being taught to meet the enemy in battle succumbed to the hardships and insanitary conditions of life in their camps of instruction.

The sites of certain of the camps have been instanced in the newspapers as the cause of the sickness that was developed in them. It is true that in some localities the sinks could not be made of the proper depth on account of underlying rock; in others a substratum of impermeable clay, and in others again a high level of the subsoil water interfered with a satisfactory condition of the sinks. At Miami, Fla., the water supply was generally regarded as not good, and at Camp Merritt, Cal., the climatic conditions were such as to lead to its speedy abandonment. But these were local conditions, while the sickness which invaded the camps was general in its onset. A review of the whole situation shows that it was not the site but the manner of its occupation which must be held responsible for the general spread of disease among the troops.

The primary evil was overcrowding of the site. The aggregation of the troops was effected hastily. On his arrival at Camp Alger the medical officer assigned to duty as chief surgeon found a number of

regiments already in camp; "troops were arriving with every train, generally without previous announcement, and these camped where they saw fit." As a general hygienic, as well as a military principle, troops in the field should encamp in rear of their color line. The area occupied as a camping ground should be as wide as the color line is long. This gives wide streets, ample space for the separation of tents, and a front which affords room for the needful sink accommodation. But no principle of this kind was manifest in the regimental camps of the newly organized commands. On the contrary, the idea seemed to prevail that the troops should be compacted as much as possible. Both at Alger and Chickamauga the companies of a regiment were crowded on an area insufficient for those of a battalion, and brigades were packed together with scarcely an interval between the regiments. Lieutenant-Colonel Smart, in his inspection of Camp Alger, found company streets hardly wider than the intervals between adjacent companies should have been, and tents of the same company in contact with each other on the sides and in contact on the ends with those of the adjoining company, so that the double row of tents between the narrow company streets made a continuous canvas covering 70 to 80 feet long and 16 feet wide, under which 100 men had to find shelter. Even when space was allowed between the tents of the same and adjacent companies, it was wholly insufficient for proper trenching, ventilation, and passageway. With streets reduced in some instances to a width of only 13 feet, the natural surface of the ground with its matting of grass roots is speedily eroded and the camp surface converted into a layer of dust or mud, according to the character of the weather. This constitutes a serious evil, but the great sanitary objection to crowding the area in this way is that the slops and garbage of the kitchens and the excreta of the sinks are too near to the quarters of the men. Fecal odors were perceptible in many of the camp streets; and of certain regimental camps it is reported that their odors were in themselves a veritable nuisance. The contracted front of the camp gave no room for a sink of the proper size for each company. A battalion of troops had to use a sink insufficient to accommodate a company. It was impossible to keep these pits in good condition when used by so many men. Covering the excreta at regulation intervals was unsatisfactory, as fresh deposits were made while the police party was at work. Efforts were made to remedy this by requiring the individual men to cover the deposits as soon as made. There was no room for the only efficient remedy, a sufficient number of properly constructed and well-cared-for sinks, 150 yards in front of the color line, or at a corresponding distance on the flanks of the camp. These small sinks had the further disadvantage that they were filled up almost as soon as dug and had to be replaced by freshly dug pits, so that in a short time the whole of the contracted front of the camp was converted into sink surfaces. On April 25, 1898, foreseeing the likelihood of insanitary conditions in the camps of our newly raised troops, and with the view of preventing them, I issued Circular No. 1 from this office impressing upon medical officers their responsibility in sanitary matters, and the necessity for a strict sanitary police, particularly in the care of the sinks and in the preservation of the camp area from contamination. But the density of the military population on the area of these contracted camps prevented the possibility of a good sanitary condition. Camps of this character may be occupied for a week or two at a time without serious results, as in the case of *national guardsmen* out for ten days' field practice during the

summer, but their continued occupation will inevitably result in the breaking down of the command by diarrhea, dysentery, and typhoid fever.

Not only was the area crowded by the tentage, but the individual tents were overcrowded. Four to seven men were crowded into the small, wedge-wall tent which covers an area of only 7 by 8 feet. Some company or regimental commanders encouraged their men to build sleeping bunks, or rather low platforms, for the area under canvas would not permit of a separate bunk for each man; others directed the men to carpet the floor of their tents with pine twigs or a layer of bark. Others again had straw littered on the floor; but most of the commands lay for weeks upon the ground, their blankets soiled and matted with dust, and their clothes, even to their change of under-clothing, soiled and dusty, for it was impossible to preserve anything clean under such primitive camp conditions. Facilities for bathing were rarely found in the camps, and laundry and lavatory facilities were not always readily available.

These troops were subjected to most of the discomforts, hardships, and climatic exposures inevitable to an active campaign, while nominally enjoying the comforts of a fixed camp of instruction. Only on active service in front of an enemy should it be allowable to have men sleep on the ground for weeks at a time, under insufficient shelters, and with inadequate facilities for personal cleanliness. On active service many of the insanitary features of their surroundings would have been removed. While campaigning they would have changed camp sites from time to time and would have been freed from the harmful influence of accumulated filth, while opportunities for bathing would have been presented occasionally in passing or camping near streams. The only explanation that can be given is that the officers, military and medical, having no experience of military life in the field, assumed that the deplorable condition in which they were living was the usual mode of life of soldiers situated as they were, and that their duty as true soldiers was to endure, not only without complaint, but with a certain pride, the hardships of their camp life.

Practically nothing was done to make the men comfortable or to remedy the insanitary conditions until these were brought to the attention of the Secretary of War by inspectors sent out by special orders from the War Department. Then the camps held for so long were abandoned, but not before the manifestations of typhoid infection were rife in them, new sites were carefully selected, regimental camps were expanded, company tentage increased, and board flooring provided. Then, for the first time, the troops went into camps suitable for the occasion.

An increased prevalence of diarrheal diseases was the first manifestation of danger in the early camps. Much of this was no doubt due to chill to the surface in cooling off after the perspirations attending drills in hot weather, much to sameness of diet and bad cookery, much to over-indulgence in fruit of doubtful quality, pies, etc., purchased from peddlers of food and soft drinks who were established in business in or around most of the camps, and much to similar indiscretions following the arrival of boxes of dainties from friends at home. Chill to the surface was aggravated by the ignorance or recklessness of the men, few of whom appreciated its danger. The *same-ness of diet* led to criticism of a ration which is not only more liberal *than that of any foreign military service*, but more liberal *than that*

which sustained the volunteers of the civil war during their arduous campaigns. Regimental commissaries and company commanders require experience which few of our volunteer officers possessed. The annual outings of the National Guard, with a caterer to provide special diet for the men, gave no opportunity for line officers to learn how to use a fixed ration to the best advantage or to exercise the needful supervision over cooks of doubtful qualifications. But notwithstanding the disadvantages arising from this ignorance, medical officers generally report that so-called delicacies purchased by individuals or sent by sympathizing friends was the cause of more sickness than the sameness of the Government's ration aggravated by bad camp cookery. It is hardly needful to cite reports to sustain these statements. Many medical officers noted each of these causes and cautioned commanding officers against them. Testimony of a similar kind comes from Porto Rico and the Philippines. General Brooke attributed the diarrheal troubles which affected his command to the excessive indulgence of the men in the fruits of the island, and the chief surgeon of the Department of the Pacific, in referring to the prevalence of diarrhea and dysentery, attributes these diseases to the difficulty experienced in restraining the men from eating and drinking unwholesome articles.

One prominent cause of the increase of sickness in the early camps has been commented upon by only a few of our medical officers. These cite the prevalence of drunkenness and of venereal disease due to the facilities and temptations afforded by the proximity of cities to the large camps. They hold that if the systems of the men had not been weakened by dissipation they would not have succumbed so readily to the other influences which affected them.

Malarial fevers added to the sick lists of camps in Florida, and of southern regiments in the camps in Georgia and Virginia.

It was, however, typhoid fever which broke down the strength of the commands generally, the outbreak becoming distinctly manifest in July. Sporadic cases appeared in most of the regiments in May and June, these cases having been brought, in many instances, from the State camps. In fact some regiments, as the Fifteenth Minnesota, suffered more from this disease at their State rendezvous than any of the regiments in the large Federal camps. A few of the regimental commands in the latter may be said to have escaped visitation. The sanitary conditions affecting the commands in the various camps have been studied in connection with the prevalence of typhoid fever among the men by a board of medical officers consisting of Majors Reed, Vaughan, and Shakespeare, but the results of the investigations of this board have not as yet been reported in full. It appears to me, however, from a general review of the sanitary reports already filed, that the prevalence of the disease was proportioned to the insanitary camp conditions which I have described above. My circular No. 1, already cited, was intended to bring the danger from this fever to the notice of medical officers with the view of obviating it. The probability of its communication to soldiers in camp through the agency of flies was pointed out as a reason for insisting on a sanitary police of the strictest character. At the time of the outbreak and rapid spread of the disease all the camps were suffering from what many reports characterized as the "plague of flies." Clouds of these insects swarmed about fecal matter and filth of all kinds deposited on the ground or in cesspools or sinks, and conveyed foul and infectious matter thence to the food exposed while in preparation in the *company kitchens or while being served to the men.*

It is well known to the medical profession that this fever is propagated by a contaminated water supply, and it is now recognized that the great prevalence of this disease in an aggravated form in the camps of the civil war was due to the use of surface and shallow well waters infected by typhoid excreta. To prevent transmission by the water supply I recommended the use of boiled and filtered water when a pure spring supply could not be obtained, and to enable an efficient filtration of suspected waters to be made field filters of approved construction were issued on my recommendation by the Quartermaster's Department. Circular No. 4, of May 31, 1898, was issued from my office that medical and company officers might have a thorough understanding of the intention and action of these filters and that the full benefit of their use might be secured to the troops.

Chief surgeons were instructed to forward samples of water to this office for analysis whenever a doubt existed as to its quality, and the water supply of several of the camps was thereafter kept under analytical observation. This care exercised in the exclusion of typhoid infection from the water did much to retard the epidemic progress of the disease. Regiments camped near each other and using water from the same sources were not equally affected, thus showing that the cause was disseminated in other ways than by the water supply. The disease was slow in its development at Jacksonville, Fla., which had a water supply from artesian wells. But the infection once introduced into a camp, from State rendezvous or by sporadic infection from the neighborhood, began slowly to spread on account of the close contact of the men through overcrowding and the bad condition of the sinks.

Undoubtedly the very dust of the camp site became a medium for the transmission of the disease from the drying up of deposits of filth on the neighboring surface, and from the breaking up of the dried soil over disused sinks. At Tampa, Fla., many of the sinks were shallow, and heavy rains flushed their contents over the surface of the ground to become afterwards dried and pulverized; and at Jacksonville, where barrels were used instead of privy pits, it is reported that there was much carelessness in the handling of the tubs, and that during their transportation through the camps the contents were frequently spilled. Troops camped on the leeward side of the line of transportation suffered heavily from typhoid fever.

The prevalence of typhoid fever was lessened in some instances by leaving the infected locality, and exercising greater care in the arrangement and sanitary administration of the new camps. This was illustrated by the record of the Second Army Corps after its removal from Camp Alger, Va., to Camp Meade, Pa.

The infection was carried by the Fifth Army Corps from Tampa to Santiago where, under the unfavorable conditions affecting the troops in the trenches, its rapid spread, together with the occurrence of yellow fever and the general prevalence of malignant malarial fevers, occasioned the utter breakdown of the health of that command. The infection was carried also to Porto Rico, but its spread, so far as I can learn from the reports that have been rendered, has not been as rapid as in the home camps, probably on account of the movement of the troops from place to place in the advance from Guanica.

The disease prevailed to a considerable extent among the regiments aggregated at Camps Merriam and Merritt, San Francisco, Cal., for embarkation to the Philippine Islands, but according to the latest advices from the chief surgeon at Manila it has not reappeared to any extent in the command there. This is probably to be attributed to

the use of distilled water during the long voyage and the flushing of the latrines on board ship by a constant stream of sea water. All men notably sick were left behind at the division hospital at the Presidio; and it must be assumed that the cases embarked in the incubatory stage were prevented from infecting the command by virtue of the excellent sink arrangements. Only 14 deaths from typhoid fever were reported from the expeditionary force of 18,000 men from May 25, when the first vessels sailed, to August 31, the date of the last report received.

THE CARE OF THE SICK AND WOUNDED.

Each regiment of the Volunteer Army was authorized by law to have 1 surgeon, 2 assistant surgeons, and 3 hospital stewards. Inasmuch as at the time of its muster into the service of the United States it was of necessity a separate organization, the sick had to be cared for by the regimental medical staff, assisted, in the absence of hospital corps men other than the stewards, by enlisted men of the line detailed by the regimental commander for duty as hospital attendants. Each regiment of the Regular Army had one or more medical officers, and its quota of hospital corps men detached from the military stations at which the companies of the regiment had been stationed prior to the outbreak of the war; and each had an ample provision of medical supplies derived from the same sources. Some of the regiments of the Volunteer Army were provided by State authorities with more or less of the equipment needful to establish a regimental hospital, but the majority had little or nothing in the way of medical supplies. I have already stated (p. 691) the measures adopted by me to supply the necessities of these regiments.

As soon as the regiments were organized into brigades and divisions, preparatory to active service, it became the duty of each chief surgeon of an army corps to see that the medical department of his command was organized to meet the casualties of battle. The object of the concentration of the troops was to accustom the regiments to operations in which they constituted the units of a higher organization. The experience of the civil war demonstrated that for efficient service in an active campaign the medical department also required a higher organization. Circular No. 3, from this office, dated May 18, 1898, in specifying the duties of the various medical officers in an army corps, indicated the character of the organization to be adopted. The seriously sick were to be treated in division field hospitals (unless their transfer to a general hospital was advisable) under the care of the most experienced physicians and able surgeons on duty with each division. Medical officers left on duty with their regiments were to exercise sanitary supervision over the well men and to determine whether a soldier reporting himself sick should be sent to hospital or remain as a trivial case under treatment in quarters. This consolidation of the medical force by divisions, implying as it did the breaking up of the regimental hospitals, met with a strong opposition from regimental medical officers, particularly from those who were not detailed for special service at the division hospitals. Regimental commanders were also, in many instances, opposed to it, forgetful that the object of the medical department, as of the line, was to get into training for field service. Similar objections were raised in 1862 and 1863 to the establishment of field hospitals and the practical disestablishment of the regimental institutions, but the civil war lasted long enough to demonstrate the efficiency of the system.

The Fifth Army Corps.—The organization of the division hospitals of the Fifth Army Corps was begun May 3 at Tampa, Fla. Long before the corps embarked for Cuba its field hospitals were in condition for efficient service, and although its ambulance companies were not filled up to their intended strength nor fully equipped with ambulances, wagons, horses, and harness, such sections of them as had their equipment completed were well drilled in hospital corps work and ready for active service. Each hospital had about eight 6-mule wagons to haul its tentage and supplies. The equipment of the Second Division hospital was completed at an early date. It contained 85 cots, with a sufficiency of furniture and necessary fixtures, and as the demand for extra accommodations increased, the capacity of the hospital was augmented to 150 beds. The operating tent was provided with enameled-steel folding operating tables, steam sterilizers and water heaters, bath tubs, and other necessary appliances. The hospitals of the First and Third divisions and of the cavalry division were similarly outfitted. In addition to these hospitals certain medical supplies, with 1 acting steward, 1 private, 1 hospital and 1 common tent, 1 ambulance wagon, and the necessary animals fully equipped were retained as a minimum allowance with each regiment. (General Orders, No. 14, Headquarters Fifth Army Corps, June 6, 1898.)

Subsequent events, however, rendered valueless these preparations of the medical department for active service in Cuba. When the command embarked on the transport vessels, the baggage wagons and mules were left behind "and were never seen again by the medical department of the Fifth Army Corps." The ambulance trains of all the divisions, with a large part of the outfit of each of the hospitals were also left behind. Three ambulance wagons were taken apart and stored on one of the vessels. These did excellent service at San Juan and El Caney and showed how efficient the ambulance companies would have been had they not been deprived of their equipment. Ten of the ambulances of the third or reserve divisional hospital were subsequently shipped to Cuba, where they arrived July 2, and were of value in moving the sick and wounded to the hospital at Siboney and to the hospital ships and transports. The ambulance service of the division hospitals of this command was thus practically destroyed by these failures to embark or disembark its wagons, harness, horses, and mules. Part of the tentage and property of the hospitals was left at Tampa with the sick left there. Of the property and supplies carried to Cuba, a portion was not available for service at the time it was most needed, to wit, on July 1, 2, and 3, when the wounded from El Caney and San Juan were coming from the front for care and treatment. This was because, in general, no opportunity was afforded to land the medical property, because there was no transportation on shore for such articles as might be landed, and because the masters of transports took their vessels out to sea after the debarkation of the troops because of their fear of wreck by collision with each other or by drifting on the rocks. Earnest efforts were made by medical officers to have supplies at the front with the troops. Some having succeeded in getting their medicine chests and other articles of medical property ashore had these carried forward on litters by hospital corps men to the camps near Sevilla, while others turned their private mounts into pack horses for this purpose. A reserve supply of medicines shipped on the *Segurança* from the purveying depot at Tampa was landed June 27. These, issued to regimental medical officers, materially relieved the stress caused by the failure to land their regimental medicine chests.

The tents and property of the First Division hospital were landed by the efforts of the hospital corps men, under the direction of Maj. M. W. Wood, surgeon, United States Army. The hospital outfit was carried to the front by hand and on litters used as handbarrows by the nurses and attendants.

The second field hospital landed was that of the cavalry division under Major McCreery, but the transport put to sea before the whole of the property was removed from her. This, with the immediate incoming of the wounded from the fight at Guasimas, led Major Havard, the chief surgeon of the division, to look for assistance from the Red Cross Society. Assistance was freely given then and afterwards, but a misunderstanding, the particulars of which have been specially reported by Major Havard, gave origin to many press accounts of the refusal of Red Cross assistance by medical officers. Both Major Havard and Lieutenant-Colonel Pope, the chief surgeon of the Fifth Army Corps, have testified to the value of the field supplies received from the *State of Texas*, the Red Cross supply ship, and to the earnest and untiring work of Miss Barton and her assistants in caring for the wounded.

The Third Division hospital, which was landed from the *Saratoga*, after many delays, afterwards became the base hospital at Siboney. To this were sent all the medical supplies recovered from the transports or landed from the hospital ship *Relief*. The fourth divisional hospital of the corps was retained on the steamer *Olivette*, which was thus extemporized into a hospital ship. The tents and camp outfit of this hospital were landed for service at Siboney. During and after the battles at El Caney and San Juan there was an insufficiency of tents, cots, bedding, and medicines, due to the causes already stated, but all the hospitals were well equipped for surgical work.

Early in the second week of July a few cases of yellow fever appeared among persons who had occupied the huts at Siboney, and day by day thereafter a steady and rapid increase of the disease was observed. This necessitated the establishment of a yellow-fever hospital and of a detention hospital in which cases of a suspicious character coming from the camps were held pending a decision as to their nature. The want of shelter was seriously felt at these hospitals, and was, under the circumstances, corrected but slowly when tents could be spared from the base hospital at Siboney, and from the first divisional hospital as its wounded were removed for transportation from Cuba.

After the capitulation of Santiago the troops at the front broke down rapidly under the fatigues they had undergone and the malarial influences to which they were exposed. Remittent and typhoid cases became exceedingly common.

By this time an ample supply of tents, furniture, bedding, clothing, and medical stores had reached Siboney, together with a corps of trained nurses and a force of surgeons, those sent to duty at the yellow-fever hospital being immune to that disease. Meanwhile, to relieve the pressure on the field hospitals, such convalescents and sick as could bear the journey home were sent to the United States on transport vessels.

This was an emergency measure to relieve the hospitals at Siboney and permit of the transfer to them of the men who were sick in regimental camps. It should have been carried out under the supervision of the military authorities at Santiago, who alone were cognizant of the necessity and of the means available for effecting the transfer. My circular of July 18, 1898, defining the duties of army medical

officers, requires that the chief surgeon of a corps "should supervise the movement of sick and wounded to the base or general hospitals, providing transportation and detailing medical officers and attendants for their care." The lack of surgeons and nurses on these vessels was probably unavoidable, this lack, because of sickness and other causes, being one that pertained to all the hospitals of the corps at that time and to many regimental organizations also. Furthermore, the convalescents were supposed to be practically well men, and at least able to care for themselves, excepting during such illness as might break out during the voyage, and for this contingency provision supposed to be reasonable was made by the presence of one or more medical officers and the supply of some of the most necessary medical stores.

The transfer of troops from Santiago to Montauk Point, New York, was also an emergency measure, but it was conducted under proper supervision by the military authorities concerned. The great responsibility of excluding yellow-fever infection from every transport rested on the medical officers who had charge of the embarkation. Had they failed in this duty the effect would have been disastrous during the voyage to the men confined on shipboard, and the risk of importing the disease into this country would have been greatly increased. Fortunately the delicate task was accomplished without the occurrence of any such outbreak of disease among the troops as was anticipated by many medical men and others who could appreciate the deadly character of the risks involved.

The sanitary conditions on board of most of these transports were fairly good. According to reports rendered by Maj. Walter D. McCaw, surgeon, United States Volunteers, who accompanied the Sixth and Thirteenth United States Infantry on the *Vigilancia*, the ventilation of the sleeping quarters of the men was satisfactory—plenty of deck room was available and the berths below were not overcrowded. The ship's officers and crew were attentive to the wants of the command, aiding the men in the preparation of their meals and in making them comfortable in their quarters. The water supply was plentiful and good. The weather was excellent during the short voyage, and the health and spirits of the men improved every day.

In view of the necessity for the return of the troops of the Fifth Army Corps from Santiago, Cuba, preparations were made for encamping them at Montauk Point, Long Island. These included the establishment of temporary tent hospitals, not only for the treatment of the large number of sick brought by each command from Cuba, but for the isolation and treatment of those from transports lying under the suspicion of yellow-fever infection.

The detention hospital received its first cases on August 15. At that time it consisted of separately pitched hospital tents, but as the cases received from the transports increased in number, framed and floored tent pavilions were erected, consisting of six tents pitched end on to each other, with a fly inserted in the middle length of the pavilion to promote ventilation. On August 31 fourteen of these pavilion wards were in use, with 40 tents pitched singly for convalescents. At this time there were 15 medical men on duty at the hospital. At first the corps of nurses comprised only 41 members of the Hospital Corps and 4 volunteer Red Cross nurses. Policing was done by hired laborers. A temporary detail of men from the Two hundred and third New York was obtained to increase the hospital force until the arrival of trained female nurses. Sixty of these were employed at the hospital. The patients were provided with cots, bed linen, and

blankets, and the limit of 5 patients to each tent was seldom exceeded. This hospital had about 500 beds. Civilian cooks were employed. Milk and eggs were always plentiful for special diet. Medicines were drawn from the Montauk Point hospital, which was but a few hundred yards distant. The difficulties in the way of administering the affairs of this establishment were very great, owing to the rapidity with which the transports followed each other in their arrival. As many as four reached the Point on some days from August 13 to 31, most of them bringing sick requiring detention for medical observation. The obviously temporary nature of the establishment prevented efforts to provide it with fixtures or furniture when the purpose could be effected by extemporizations. Thus, in the tents used as offices, dispensary, and storehouses, empty packing boxes were utilized as desks, washstands, etc. This no doubt created an impression of discomfort and privation in the minds of superficial observers, but the sick men were as well cared for and as comfortable in their cots here as afterwards when transferred to the general hospital at Montauk Point. There was an excellent steam disinfecting plant on the grounds, with a formaldehyde chamber attached. The laundry work was done at a steam laundry near the hospital.

The temporary tent hospital, which was locally known as the general hospital, Montauk Point, consisted of eighteen pavilions similar to those of the detention hospital. A central corridor running east and west had nine of these pavilions opening on it on each side. An annex had speedily to be constructed to accommodate the large number of sick arriving on the transports, transferred from the detention hospital, or received from the regimental camps of the Fifth Army Corps. This annex consisted of fourteen tent pavilions, arranged seven on each side of a central corridor. Other pavilions were added in parallel rows as an extension of the accommodations became necessary. Tent pavilions were used as dining rooms, but frame buildings were erected for use as kitchens. The capacity of this hospital was 1,600 beds. Its personnel consisted of 40 medical men, 3 stewards, 10 acting stewards, 120 privates of the Hospital Corps, 15 cooks, 50 male nurses, and an average of about 200 female nurses, one-half of whom were Sisters of Charity. Supplies of all kinds were amply provided on timely requisitions. Emergency calls were met by direct purchase in New York City. Large supplies of milk, eggs, chickens, canned articles, and other material for special diets were always on hand. Provision for special diet was made not only by the hospital, but by the Massachusetts Volunteer Aid Association, the Red Cross Society, and the Women's War Relief Association. Cooks and helpers were kept on duty night and day to meet emergencies in special cases.

In one or two instances inquiry has been made as to the treatment of the body in the case of soldiers who died at these or other military hospitals. As a rule, immediately after death the body was washed, the jaws bandaged, and the rectum closed. When cold the body was dressed in uniform and placed in a coffin. If the relatives of the dead soldier desired his body to be sent home for burial an undertaker removed it to his establishment, where he embalmed it and expressed it to its destination in a hermetically sealed zinc-lined coffin. If no communication was received from the relatives it was buried in a suitable place twenty-four hours or more after death unless hot weather rendered an earlier burial necessary. The grave was properly marked for identification.

The Medical Department has been criticised adversely for granting furloughs to go to their homes from this camp and its hospitals to

men who, it is claimed, were obviously unfit to travel, and cases were cited in the newspapers to sustain this criticism—cases of men who had fainted by the way and had to be cared for by the Red Cross agents or sympathizing strangers. To correct this abuse and prevent a recurrence of such cases it was not the carelessness or recklessness of the army doctors which had to be restrained, but their sympathy with the patient and with the desire of the patient's friends to be intrusted with his care in view of a speedier recovery in the atmosphere of home. As a matter of fact, the officers charged with the duty of furloughing the sick men were kindly and sympathetic, and such mistakes as were made were attributable to the great pressure brought to bear on this side of their nature.

It is needless to refer at this time to the complaints of starvation which appeared almost daily in the newspapers during the occupation of Camp Wikoff, for it is now generally understood that the weakness, prostration, anæmia, and emaciation of so many of the troops were the results of malarial, typhoid, and yellow fever, from which the army suffered as a consequence of its exposure to the climatic influences and local infections of Santiago and its neighborhood pending and subsequent to the surrender of the city.

The Medical Department has been criticised also for moving typhoid cases from the camp to hospitals in various cities, with the attending risk of propagating this dangerous disease not only in these cities, but throughout the country while en route to them. The movement was made to have these cases of prolonged duration carefully sheltered before the oncoming of the chilly and stormy weather which is usually expected on that coast about the equinoctial period, but as it was effected by steamship the spread of the disease by cases en route was prevented, and as the city hospitals to which the sick men were transferred had all the needful facilities for disposing of infected material without danger to the community, it is seen that there was no basis for the criticisms cited.

Troops in the home camps.—The regiments composing the other corps of the Army were camped at first in State camps and afterwards aggregated in camps of organization and instruction. The First and Third Corps were organized at Camp George H. Thomas, Chickamauga Park, Ga.; the Second at Camp Russell A. Alger, near Falls Church, Va.; the Fourth at Mobile, Ala., and Fernandina, Fla.; the Seventh at Jacksonville, Miami, and Panama Park, Fla., and the Eighth near San Francisco, Cal., preliminary to its embarkment for Manila.

The method of hospital organization in all these camps was practically the same, and there was much similarity in the conditions affecting them, and correspondingly in their history. Regiments reported, as already stated, provided in but few instances with the material and supplies for their medical care, and in no instance with that liberality which by consolidation or concentration of regimental supplies would permit of the formation of a well-equipped hospital for a division. But they brought sick men with them, and these required immediate care. Provision had to be made for division hospitals in view of future field service, and for regimental hospitals in view of the immediate necessity. The difficulties in the way of the contemporaneous accomplishment of these two objects were great, and they were greatly augmented by some of the very men who should have aided in overcoming them. The inexperience of a majority of the regimental medical officers and of many of the chief surgeons prevented them

from seeing beyond the immediate necessity. The sick had to be cared for, and to this end medicines and other things had to be procured. Relief societies offered assistance, and this was eagerly accepted by many of these medical officers, not alone for delicacies or luxuries not otherwise provided for, but for supply table articles which could have been had from the medical purveyors in their camps or by telegraphic requisition on the Surgeon-General. It was easier to accept what was so freely offered than to learn how to obtain the articles from the proper source. The aid given by the relief societies did harm indirectly by demonstrating this fact. To explain their prompt acceptance of this assistance these officers referred to the red tape of the War Department methods, and the insinuation that the said methods were beyond the comprehension of the ordinary intellect was accepted by the sensational press as an explanation in full. In these early days of the camps the exuberance of the patriotic spirit of the people which led them to aid the sick soldiers did much good, but, as I have implied, it also did much harm.

Meanwhile chief surgeons of corps and divisions began the organization and equipment of their field division hospitals and ambulance companies, but they were met at the outset by the apparent impossibility of securing men for service as cooks, nurses, litter bearers, ambulance drivers, teamsters, etc. The Hospital Corps of the Regular Army could not supply these men, because recruiting for this corps progressed slowly. The popular tendency to volunteer led men away from the regular recruiting offices. In the regimental hospitals the sick were cared for by details from the companies, but when transfers from the volunteer regiments to the regular Hospital Corps were authorized (see p. 14) these men did not care to leave their local connections for service in the Army at large as regular soldiers. Concessions were made to them—among others, that when their former regiment became attached to another corps, camp, or duty they also would be detached to accompany it—but notwithstanding these the Hospital Corps was recruited so slowly that had the military necessity required one or more army corps to take the field their medical service could have been perfected only by drafting men from the incomplete hospital organizations of those corps that remained in the home camps of organization and instruction. It may be mentioned also as a well-recognized fact that the transfers so much desired by the Medical Department to enable it to complete its organization were not regarded favorably by line officers, for, although every line officer will probably acknowledge as a general principle that only the most intelligent and capable men should be employed to care for the sick and wounded, he is not likely to act on this general principle when it is a question of withdrawing for such service the most intelligent and capable men of his own company or regiment.

The division hospitals of the First and Third corps at Camp George H. Thomas, Chickamauga, Ga., and of the Second Corps at Camp Russell A. Alger, Falls Church, Va., were usually established in the immediate neighborhood of the regimental camps of the divisions. They consisted of two or three hospital tents pitched end on to each other as pavilion wards, or of four or five tents, two or three end on to each other at each end of an intervening fly, the latter inserted to break the continuity of the wall and thus to promote ventilation. The pavilions were arranged in various ways, according to the configuration of the area available as a site, but in general there was a tendency to crowd the area. In none of the camp hospitals were the

pavilions separated from each other by a space equal to twice their width, a distance which is necessary to give restful quiet to the inmates, free ventilation and good policing, and to lessen the danger from fire. Surgeons in charge recognized that a tent should not be occupied by more than six patients, but sometimes this number was exceeded temporarily while waiting an increase of tentage. The intention of chief surgeons was to have each hospital equipped for 200 patients, but in some the number of beds had in July to be increased to 250. In some when first established there were not enough cots for all the patients, the convalescents or lighter cases sleeping on bed sacks on the ground, but this was promptly remedied when observed by chief surgeons or reported to them. As a rule the hospitals were kept in campaigning condition—that is, the tents were neither framed nor floored—until the increased prevalence of typhoid fever attracted attention to their crowded condition, when the object of their existence became suddenly changed from a school for field service to a hospital for the treatment of a local outbreak of disease. The pavilions and other tent shelters of the hospitals were usually well trenched and the camp surface well policed. A small pavilion did duty as an office and dispensary. A surgical ward was connected with an operating tent suitably fitted for antiseptic work. Bath tubs were provided to insure a cleanly condition of the patient before admission to the wards and for the subsequent treatment of cases requiring them. In most of the hospitals there was also a special ward for venereal cases, and isolation wards for cases of measles and mumps. Commodes and bedpans were used in the wards with disinfectants, and the preliminary reports of the medical board which investigated the propagation of typhoid fever in the camps show that the medical officers on duty in these hospitals realized the importance of the use of disinfectants in limiting the spread of the disease, but it was difficult for them to have efficient service in this regard with untrained hospital corps men and details from the line with even less experience. Sinks were dug for convalescents and attendants, but at first these were like those in the regimental camps, not far enough removed from the occupied tents and not cared for with that strict attention which their importance demanded. Special efforts were made in all the hospitals to have good cooks. Seldom, however, was there that knowledge on the part of the medical officers which enabled them to accumulate a hospital fund for the purchase of special articles of diet for the sick, but this did not operate to the detriment of the patients, as special-diet kitchens, under the management of capable individuals, were opened at most of the hospitals. Money for this purpose was sent to them by me from funds contributed and placed at my disposal. Money was also sent directly by individuals and by representatives of aid societies, and the Red Cross committees supplied quantities of ice and milk, chickens, eggs, lemons, etc. Pajamas, night shirts, and other articles of hospital clothing were also provided by the Red Cross and other aid societies. Subsequently the order authorizing the commutation of the sick soldiers' ration at 60 cents rendered these hospitals wholly independent of outside assistance.

In the Third Army Corps, particularly in the Second Division, many of the regiments continued to maintain regimental hospitals after the organization of the hospital for the division, because the epidemic of typhoid fever interfered with the progress of preparation for field service. As illustrating the condition of these field hospitals, it may

be stated that on July 27, 1898, the hospital of this division consisted of 37 hospital tents, 8 conical and 6 common tents, with 285 cots, 250 of which were occupied by patients, cared for by 8 medical officers, 6 stewards, and 138 privates, of whom 25 were detailed from the line of the Army. The hospital streets were broad and the general police excellent. The general wards were in good condition, but the typhoid fever wards were crowded. Assistance was given by the Red Cross, including milk, special articles of food, comforts, and ice.

The division hospitals of the Second Corps at Camp Alger were relieved by transfers to the general hospital at Fort Myer, Va. The overflow from the division hospitals of the First and Third corps was at first received at the Leiter Hospital, at Chickamauga Park, Ga., but as this proved insufficient, a large hospital was established in August to receive the rapidly increasing number of cases of sickness occurring in these corps. This hospital early in September was officially recognized as the Sternberg General Hospital. Its first report showed a capacity of 750 beds and a personnel of 15 medical men, 1 steward, 6 acting stewards, 107 privates of the hospital corps, and 167 female nurses. On the movement of the Third Division, First Army Corps, from Camp Thomas to Lexington, Ky., its sick and the equipment of its field hospital were left in situ, the establishment, then containing 500 beds, being known first as the Sanger and afterwards as the Alexander H. Hoff General Hospital. It was discontinued September 25, when its sick were in condition to be furloughed.

The division hospitals of the Seventh Army Corps, at Jacksonville and Miami, Fla., consisted of 6 tent pavilion wards of 5 tents each, with a fly between the second and third tents of each ward. The pavilions formed a semicircle of radii from a central point, at which was established the office, dispensary, etc., of the hospital. Two pavilions were to be regarded, under ordinary conditions, as the allowance of accommodation for each brigade; and the attempt was made to keep men of the same regiment together to satisfy the desire of the volunteer troops to preserve the regimental organization in the medical service of the corps. The prevalence of measles and mumps necessitated the pitching of extensive isolation wards in connection with the formally planned pavilions.

In August preparations were made at the First Division hospital at Jacksonville to give a better shelter than that afforded by the tents. The proposition to build frame pavilions, each for 60 beds, was approved, and building was begun under contract. Concerning the hospitals of this corps a board of medical officers convened by Special Order 194, Adjutant-General's Office, August 1, 1898, reported favorably. The board considered the equipment ample as to tentage, cots, bedding, etc., and was well pleased with the care and treatment given to the patients. The cots and bedding were sent from the supply depot in New York City.

A rapid increase of sickness in the Second Division, at Miami, as compared with the First Division, at Jacksonville, led to a thorough investigation as to its causes. The tents were pitched a short distance from the town on a rough tract of ground of coralline formation. The troops were fairly well supplied with tentage and cooking utensils and the camp was well policed. Sinks were not generally used, as it was difficult to make them of the proper depth. Metallic troughs or latrines flushed into the ocean by a constant stream of water were used in the First Brigade, while the Second Brigade was

provided with galvanized iron tubs, which were taken away twice daily to be emptied into the ocean. Garbage was collected and carried to the municipal dumping ground. Water was delivered by pipe lines from the supply of the town. It was derived from a pond or lake in the everglades, and was reported as being warm and having a disagreeable taste and odor, on account of which the men used that from wells. These wells were regarded by many as contaminated with surface drainage. In fact, the opinion that the water supply was the cause of the prevailing sickness was generally entertained. Samples analyzed at the laboratory of this office gave results confirmatory of this opinion. The division hospital was established on a vacant lot in the center of the town, an unsuitable and insanitary location. On account of insufficient area, cases of measles, many of which were under treatment, could not be properly isolated. Sinks and garbage, emitting an offensive odor, surrounded the lot. The hospital was fairly well provided with tents, folding cots, medicines, and other needful supplies to care ordinarily for the sick of a division. Early in August the troops were moved to Camp Cuba Libre at Jacksonville, Fla.

The hospital of the Third Division was established at Panama Park, about 6 miles from Jacksonville.

In connection with the division hospitals of this corps a convalescent camp was established July 27 at Pablo Beach, 16 miles from Jacksonville, for the recuperation of men who had become debilitated through climatic influences.

The Fourth Army Corps.—A few regular and volunteer regiments concentrated at Mobile, Ala., formed the nucleus of the Fourth Army Corps and of the cavalry division. A division hospital of 200 beds was established here, but shortly afterwards the corps moved to Tampa and Fernandina, Fla. Tent hospitals were established and an excellent reserve ambulance company was manned and equipped for service with troops expected to operate in Cuba or Porto Rico. The sanitary conditions in the camps at Tampa were not good. Malarial fevers became prevalent and typhoid fever common. The division hospital had to be relieved by removing serious cases in the hospital train of the medical department (see page 106), to the general hospital at Fort McPherson, Ga. About August 1 an overflow hospital was organized in a school building at West Tampa.

The spread of disease among troops remaining in Tampa after the departure of the Porto Rican expedition led to the removal of many of the regiments to the neighborhood of Fernandina. The hospital of one division was pitched on the beach about 3 miles from Fernandina. A convent in the city was also used for hospital purposes.

About July 20 the troops for the invasion of Porto Rico embarked and sailed. The field-hospital accommodation with this expeditionary force was ample and the supplies abundant. The chief surgeon of the Fourth Corps urged the shipment of his reserve ambulance company with this expedition, but General Brooke considered this to be unnecessary.

A short time after the arrival of the troops at Ponce, malarial fevers appeared among them, and typhoid infection, brought from Chickamauga, Ga., and Tampa, Fla., manifested its presence in the camps. Some of these cases were sent home on returning transports, but as the voyage was found to be very trying to severe cases of typhoid fever I telegraphed Colonel Greenleaf, chief surgeon, to establish a general hospital at Ponce for such cases. Tent wards were

considered to be preferable to the use of any of the buildings in the city. Two hundred hospital tents were sent by the *Concho* on August 13, and furniture, supplies, medical officers, and nurses on the *Relief*, *Obdam*, and other vessels. Colonel Greenleaf was also well supplied with funds to provide everything necessary for the well-being of the sick. No special report of the conditions of this hospital has yet been received.

Troops on the Pacific coast.—The troops on the Pacific coast were concentrated mostly at San Francisco, Cal. Camp Merriam came first into existence on the Presidio reservation near the Lombard-street entrance. Nearly 10,000 men were encamped here, but when it was understood that the expeditionary force to the Philippines was to be increased to 20,000 men a new camp had to be established. The site selected was near the northern boundary of the Golden Gate Park, including the sand dunes in its vicinity. This was Camp Merritt, at which 18,000 thousand troops rendezvoused for shipment to Manila. Much sickness occurred among the regiments in this camp. Some of the commands brought with them the infection of measles, and this disease spread rapidly. The cases were in many instances complicated with bronchitis and pneumonia on account of exposure to the cold, raw winds which blew constantly over the site, a site selected without consultation with any representative of the Medical Department. Cases of typhoid fever also appeared, with a few cases of cerebrospinal meningitis.

Camp Merritt was therefore abandoned, and the troops of the independent division of the Eighth Army Corps were removed to the grounds of the military reservation at the Presidio.

Eighteen thousand of the troops from Camp Merriam and from Camp Merritt were dispatched to the Philippine Islands. They were carried on twenty transport steamers, the first expedition sailing on May 25. Each steamship, before being accepted by the Government, was inspected by a board of medical officers, and in each instance the vessel was thoroughly disinfected before the troops went on board. Two or three medical officers, as many hospital stewards, and ten to fifteen privates of the Hospital Corps, equipped for field service, were assigned to each ship. With each expedition was a large quantity of medical supplies to provide the troops for six months and to equip suitable hospitals at Manila. These supplies included medicines, surgical instruments, dressings, hospital furniture, beds and bedding, and all the miscellaneous articles required for the proper treatment and care of the sick. Many articles believed to be necessary in the treatment of the diseases incident to the climate of the Philippine Islands were largely in excess of the allowances of the supply table. Large reserve supplies were sent on the *Arizona* and the *Scandia*, which sailed late in August, to replenish the stores already sent. An additional supply was also placed on both ships in case they should be required to make the return voyage in the capacity of hospital ships.

The precautions taken to secure a good sanitary condition of the vessels prior to embarkation and the sanitary supervision exercised over the men during their long voyage must be credited with the excellent condition in which the troops arrived at Manila, for if any notable sickness had occurred on these vessels its presence would certainly have been announced in the press dispatches. I have received but few reports, as yet, from medical officers who accompanied this expeditionary force, but those which have come to hand give a most gratifying view of the conditions affecting the men while on board the

transports. During the attack on the Spanish lines at Manila, August 13, the field hospitals were established at Camp Dewey, 4 miles from the scene of action. All the wounded, 45 in number, were in hospital and comfortably cared for by 7 p. m. of that day.

The service of the division field hospital, Presidio of San Francisco, Cal., began June 2, 1898, at Camp Merritt, with tents for 48 patients. At this time serious cases, mostly complications of measles, were treated in various civil hospitals in San Francisco. The site of this camp was, as stated above, unsuitable. Its surface was a cold, damp sand, continually exposed to chilly winds and heavy fogs, which saturated the tents, clothing, and bedding of the men with moisture. On July 21 the hospital was moved to the Presidio, where two large brick barrack buildings and a few hospital tents constituted the accommodations. The ventilation was poor; water had to be carried from the lavatory, and the sewerage system, if not faulty, was at least inconvenient for hospital purposes. All necessary supplies and furnishings were promptly furnished by the chief surgeon of the department. A separate special diet kitchen, which gave satisfaction, was maintained. After the departure of the last Philippine troops on the *Scandia*, August 26, the hospital force consisted of 5 hospital stewards, 7 acting stewards, 73 privates of the Hospital Corps, 33 female nurses, and 10 Sisters of Charity, the capacity of the hospital at the time being 320 beds.

The ladies of the Red Cross Society of San Francisco established a convalescent hospital of 25 beds in a sheltered place at the Presidio, to which patients were transferred from the division hospital to recuperate before going on furlough or being returned to duty. The chief surgeon of the department testifies to the value of the assistance given by these ladies, not only as regards this hospital, but in feeding troops on their arrival and departure, and in providing clothing and delicacies for the sick in the camps, hospitals, and transports.

To complete this general review of the camp hospitals a further reference is needful to the history of the regimental hospitals. At first when regimental commands ceased to be separate commands, in becoming the constituent units of brigades and divisions preparatory to operations against the enemy, the regimental hospitals were disestablished to consolidate the working force of the Medical Department and Hospital Corps into division hospitals and ambulance companies. The objects in view were, first, to complete the field organization of the department and, second, to instruct untrained officers and men in their respective duties, so that when field service was undertaken the Medical Department would be efficient in rear of a marching or fighting command.

The want of hospital corps men was the main cause of the failure of chief surgeons to accomplish their purpose promptly. Instead of organizing for field service their time was occupied and their energies spent in endeavoring to procure the necessary men by enlistment or transfer. Instead of instructing for field service they had to instruct untrained men in caring for the ordinary percentage of sick in a healthy command. But after a time, when sickness invaded the camps and the division hospitals became filled, preparations for field service had to give place to the immediate necessity of caring for the sick. The division hospitals became expanded, as at Siboney and Tampa, into base hospitals with increased needs and increased responsibilities. To these I sent with the utmost dispatch physicians and *surgeons under contract*, to relieve the strain on the medical officers *attached to the troops*, and trained nurses to relieve the details from

the regiments who were temporarily acting as hospital corps men. At Camp George H. Thomas, Chickamauga Park, Ga., the expansions of the division hospitals, under the conditions brought about by the typhoid invasion of the camps, became officially recognized as general hospitals and were promptly provided by me with the best available medical service, with trained nurses, with all permissible medical and hospital supplies, and with funds for special purchases.

The altered conditions under which the division hospitals were operating were immediately recognized by the chief surgeon of the Fifth Army Corps at Santiago on the breakdown of that corps after the surrender of the city, and the efforts of his medical officers to care for their sick locally were encouraged by giving them every available facility. The effect of this was seen in the camps at Montauk Point, Long Island, where regimental medical officers cared for many sick under hospital or line canvas, with details by regimental commanders as hospital attendants.

Similarly in other camps regimental hospitals were in many instances equipped to meet the necessities of the occasion. In view of the insidious progress of typhoid fever in infected individuals, febrile cases in the regimental camps required such close attention as could not be given when the men were scattered in quarters, and this called for hospital shelter and supplies. There were, therefore, in some of the camps regimental hospitals in which very serious cases were treated and in which deaths occurred, but these latter were few in number, as a transfer to the division hospitals was usually effected when the dangerous character of the disease became manifest.

The tabulation which I submit below does not include all the cases and deaths in the field hospitals, because medical officers have not in every instance rendered the required reports. The work, for instance, of the hospitals of the Second Army Corps is on this account not fully represented in the tabulation, and the reports for August from the command in the Philippine Islands have not been received. Were all the reports available that are due but not rendered the figures in this tabulation would be materially increased.

Besides this, the cases enumerated below do not represent all the men that were taken on sick report. They do not include the trivial cases that were treated in quarters, nor those cases of a serious character which were treated in regimental hospitals when the accommodations of the division hospitals were temporarily under strain. They do, however, include most of the cases that are tabulated (see p. 131) as admitted into general hospitals, for the majority of those admitted into the general hospitals passed through the division or other field hospitals en route.

Cases and deaths reported from field hospitals to September 30, 1898.

Army corps.	Location.	Cases.	Deaths.
First	First Division, Chickamauga Park, Ga.	381	25
	Second Division, Tampa, Chickamauga, and Knoxville	1,827	32
	Third Division, Chickamauga Park and Lexington	998	35
	First Brigade, First Division, San Juan road, Porto Rico	287	6
Second	First Division, Camp Alger, Va.	893	6
	Second Division, Camp Alger, Va., and Thoroughfare, Va.	353	2
	Second Division, Camp Meade, Pa.	241	
	First Division, Chickamauga Park, Ga., and Anniston, Ala.	1,818	32
Third	Second Division, Chickamauga Park, Ga.	2,664	25
Fourth	First Division, near Mobile, Ala.	279	
	Second Division, Fernandina, Fla., and Huntsville, Ala.	646	15
	Third Division, Fernandina, Fla.	238	

Cases and deaths reported from field hospitals to September 30, 1898—Continued.

Army corps.	Location.	Cases.	Deaths.
Fourth	Field hospitals, Tampa.....	2,951	50
	Reception hospital, Picnic Island, Fla.....	39	3
Fifth	Field hospitals, Tampa.....	91	1
	Camp near Santiago, Cuba.....	890	116
	Siboney, Cuba, reserve division hospital.....	2,682	111
	Siboney, Cuba, yellow-fever hospital.....	549	46
	Montauk Point, Long Island.....	5,084	126
Seventh	First Division, Miami and Jacksonville, Fla.....	2,423	41
	Second Division, Jacksonville, Fla.....	2,013	58
	Third Division, Panama Park, Fla.....	636	10
Eighth	Division hospital.....	2,722	76
Separate camps.....	Camp Bushnell, Columbus, Ohio.....	231	.....
	Camp Black, Long Island, N. Y.....	163	.....
	St. Simons Island, Ga.....	48	1
	Target range, Waco, Ga.....	458	.....
	Fernandina, Fla. (Colonel Coates).....	122	.....
	Camp Hobson, Ga.....	799	5
	Total in field hospitals.....	33,044	826

GENERAL HOSPITALS.

Up to September 30, 11 general hospitals were established and fully manned and equipped. These had a capacity of nearly 7,000 beds. At the same time certain post hospitals having good accommodations were used for the treatment of army cases generally, without alteration of their official status as post hospitals. Those, for instance, at Forts Columbus, Hamilton, and Wadsworth, N. Y., in the East, and at the Presidio of San Francisco, Cal., and Vancouver Barracks, Wash., on the Pacific coast, were expanded in this manner. The vacant beds in the hospitals of the Marine-Hospital Service of the Treasury Department were placed at my disposal and the civil hospitals of the country were ready on call to receive and care for sick and wounded soldiers. These offers of hospital accommodations and medical care were accepted by me in many instances, particularly in New York, Boston, Philadelphia, and Providence to relieve the tent hospitals at Montauk Point when crowded by the rapid transfer of sick from Santiago.

1. *The Leiter General Hospital, Chickamauga, Ga.*—The building occupied was a summer hotel converted to hospital uses. It is a modern and apparently well-constructed building, well furnished throughout, heated by steam, and lighted by electricity. It is situated in 5 acres of ornamental grounds near Crawfish Springs, on a railroad direct from Chattanooga to Camp George H. Thomas. It was estimated to accommodate 175 patients, but cots for 30 convalescents were placed in the verandas, and two wards of 16 tents in all, with an occupancy of 80, were established in the grounds—total capacity, 285 beds. The water supply is pumped from Crawfish Springs into a distributing tank. The personnel of this hospital consisted of 14 medical officers, 38 members of the Hospital Corps, and 34 female nurses. Its kitchens, including special diet, are reported as excellent. The hospital was established June 6, 1898.

2. *General hospital, Key West, Fla.*—On April 20, 1898, the convent and two school buildings and grounds of the Sisters of Mary Immaculate, Key West, Fla., were turned over by agreement to the Medical Department of the Army for use as a hospital during the war. Cots with bedding for 500 patients were immediately forwarded, and the surgeon in command was instructed to call for such supplies as were

needful. The post hospital at Key West Barracks afforded many desirable facilities for the establishment of the general hospital at this place. Frame buildings were erected on the convent grounds for use as isolation wards, earth closets, etc. A pesthouse for the treatment of yellow fever and smallpox cases was established in connection with the general hospital. The personnel consisted of 7 medical officers, 34 members of the Hospital Corps, 9 contract nurses, 23 sisters of the convent, and 29 employees, cooks, laborers, teamsters, etc.

3. *General hospital, Fort McPherson, Ga.*—This hospital may be said to have been established May 14, 1898, when a train load of patients from Tampa, Fla., was received for treatment. Certain of the barrack buildings of the post were used in connection with the wards and offices of the post hospital. On June 20 the accommodations were extended by the use of 35 hospital tents, and shortly afterwards 100 more tents were pitched on frames and floors for use. The number of available beds for patients is 922. The general mess hall of the post is used as a dining hall for convalescents, hospital-corps men, trained nurses, and employees. There are also 4 special diet kitchens, which suffice for the needs of those seriously sick. The personnel consists of 14 medical officers, 3 stewards, 5 acting stewards, and 112 privates of the Hospital Corps, with 2 hospital matrons, 71 female nurses, and 92 other civilian employees, cooks, waiters, and laborers. The patients were mostly derived from the camps at Tampa, Fla., but one train load was received from Chickamauga, Ga., and two from Fernandina, Fla., with a number of cases from the large body of recruits (2,000 to 3,800 men) aggregated at the post.

4. *The general hospital at Fort Monroe, Va.*—Orders were issued June 26 for the establishment of this hospital in connection with the post hospital of the fort. One hundred hospital tents were furnished by the Quartermaster's Department, cots and bedding for 500 patients by the Medical Department, and the surgeon in charge was directed to make requisition for other necessary supplies. The tents were pitched end on to each other in threes and fours, forming pavilion wards with streets between. They were raised from 1 to 2 feet above the surface of the ground, floored, framed, and raftered to give them stability, and connected with other parts of the hospital camp by a board walk. A frame building was erected for use as a kitchen and dining hall, the latter capable of seating 250 persons. Other buildings were constructed for use as water-closets and bath houses, the latter furnished with hot and cold water. Water from the post supply was conducted to all parts of the camp and a condensing plant provided a sufficient supply of distilled water for drinking. All sewage was delivered by sewers into the mains of the sewerage system of the post. This hospital was strengthened by the conveniences of the post hospital, including, besides its wards, an operating room, laboratory, dispensary, X-ray room, offices, special-diet kitchen, and storage rooms. The first patients were received July 13, 244 officers and men from the *City of Washington*, a transport from Santiago, Cuba. These were accommodated in the tent pavilions, but as the kitchen and mess hall building was yet unfinished, Buzzacott ovens under tent flies were used until July 18, when the hospital buildings were completed. This hospital received sick and wounded from the transports *City of Washington*, *Breakwater*, *Solace*, *Hudson*, *Obdam*, and *Lampasas* and from the camp at

Newport News, Va. The medical force attached to the hospital consisted of 15 officers, 2 stewards, 4 acting stewards, and 94 privates of the Hospital Corps, and 43 female and 11 male contract nurses.

5. *General hospital at Fort Myer, Va.*—On May 13, 1898, the Secretary of War approved my request to utilize the vacant barrack buildings of Fort Myer, Va., in connection with the post hospital at that place as a general hospital. The buildings were speedily fitted up and the hospital provided with all needful supplies. One building had to be erected as a deadhouse. The riding hall of the post was floored and converted into a ward for 175 patients. At each end of the riding hall, but detached from it, two water-closets were constructed for the disinfection and disposal of typhoid excreta. Water was brought into this hall, with two faucets at each end of the building, for use in filling tubs for baths. The hospital kitchens were supplemented by a Red Cross special-diet kitchen. The capacity of this hospital is 544. Most of the cases were derived from the Second Army Corps at Camp Alger, Va. The personnel consisted of 18 medical men, 2 stewards, 9 acting stewards, 67 privates of the Hospital Corps, 49 female and 12 male contract nurses, and 28 laborers.

6. *General hospital, Fort Thomas, Ky.*—On April 27 I requested authority to make use of the vacant barrack buildings at Fort Thomas, Ky., as a general hospital. This was granted, and I immediately sent 200 beds and bedding with instructions to the surgeon in command to make use of the quartermaster's bedsteads then in the barracks and to make requisition for the necessary personnel and supplies for active service in his hospital. The proposed establishment was intended as a reserve hospital, and patients were not sent to it until July 7. The number of available beds was 416. Ten medical men were on duty at this hospital, 1 steward, 3 acting stewards, 67 privates of the Hospital Corps, 33 female and 3 male contract nurses.

7. *General hospital, Washington Barracks, D. C.*—This hospital consisted of a tent hospital expansion of the hospital accommodations of the post. The tents were framed and floored; the boards of the flooring were waxed lightly before the cots were put in. Four medical officers were on duty at this hospital, with two stewards. No female nurses were employed, as the surgeon in command had a hospital-corps company of instruction to draw upon according to his needs.

8. *The Josiah Simpson Hospital, Fort Monroe, Va.*—This is a frame pavilion hospital of 1,000 beds, arranged en échelon, on the plans which gave the best satisfaction during the civil war, with an administration building, quarters for medical officers, hospital-corps men, male and female nurses, etc., and buildings for kitchens, dining rooms, storerooms, laundry, chapel, crematory, workshops, etc., all connected by covered board walks and lighted by electricity. Authority for the building and equipping of this establishment was granted by the Secretary of War, on my application of July 12, 1898. It was opened for the reception of patients in September.

The Sternberg and Sanger general hospitals in Chickamauga Park, Ga., and the Ponce general hospital, Porto Rico, have already been briefly described.

The post hospitals, which did duty as general hospitals during the war period, were chiefly six, although many others cared occasionally for sick and wounded men not members of the local garrison. The hospital building at each of these posts is in excellent condition. It formed the administration building of the extended hospital and provided commodious wards for cases of grave sickness. Fifty or more

tents with cots, bedding, etc., for 250 or more patients were sent to the surgeon in charge of each with orders to get in readiness for immediate service. These movements were instituted July 17-28. The tents were floored, framed, and pitched in pavilion wards, and prior to the reception of sick the personnel of the establishment was increased to meet the necessities of the case. At Fort Hamilton, for instance, there were assigned to duty 5 medical men under contract, 1 steward, 6 acting stewards, 24 Hospital Corps privates, and 4 male and 15 female contract nurses. Details made by the commanding officer from the troops in garrison did the policing and other heavy work of the extemporized hospital.

The appended tabulation summarizes the cases and deaths reported to September 30, 1898, from the general hospitals and the post and civil hospitals.

Cases and deaths reported from general, post, and civil hospitals to September 30, 1898.

Hospital.	Locality.	Cases.	Deaths.
General hospitals.....	Chickamauga, Ga. (Leiter General Hospital)	555	73
	Key West, Fla.	547	6
	McPherson, Ft. t, Ga.	1,342	63
	Monroe, Fort, Va.	1,218	31
	Myer, Fort, Va.	802	77
	Thomas, Fort, Ky.	519	30
	Washington Barracks, D. C.	753	5
	Total	5,736	285
Post hospitals	Columbus, Fort, N. Y.	338	12
	Hamilton, Fort, N. Y.	115	1
	Presidio of San Francisco, Cal.	1,194	33
	Vancouver Barracks, Wash.	314	1
	Wadsworth, Fort, N. Y.	475	.....
	Honolulu, Hawaiian Islands	54	1
	Total	2,490	48
Civil hospitals	Charleston, S. C., city hospital	118	8
	Charleston, S. C., St. Francis Xavier Hospital	83	4
	Key West, marine hospital, Fla.	5	.....
	Mobile, Ala., marine hospital	79	5
	New York civil hospitals	1,084	19
	Philadelphia civil hospitals	427	11
	San Francisco, Cal., marine hospital	100	14
	Stapleton, N. Y., marine hospital	106	.....
	Total	2,002	61
	Aggregate	10,228	394

THE MEDICAL STATISTICS OF THE WAR.

The work of gathering up the records of sickness of the various commands in service during the war has been one of great difficulty. Volunteer medical officers were ignorant of the methods of keeping their records, and many failed to appreciate the importance of what was frequently regarded as "mere paper work," which had no practical bearing on the welfare of their men. Notwithstanding repeated calls from this office and from chief surgeons, many regimental surgeons failed to report concerning their commands, even up to the time when the order was issued for their muster out. War Department instructions to mustering officers have recently succeeded in bringing in many reports of sick and wounded that would otherwise have probably never been rendered.

The work, however, of volunteer surgeons in this regard must be considered as satisfactory when compared with that of the volunteer medical officers of the war of the rebellion. In August, 1862, over four months after the President's call for 75,000 volunteers and five weeks after his call for 500,000 men, the medical reports represented a strength of only 109,054, in September 162,217, and in October 252,037, whereas in May, 1898, while many of the 275,000 men authorized as the war strength of the country had not yet been enlisted, medical reports representing 151,685 men were rendered.

It is to be noted, also, that the reports sent in during the recent war give a complete record of the individual cases, whereas the reports called for during the civil war were merely numerical, and specified the names of the affected soldiers only in the cases of death, discharge for disability, transfer to general hospital, etc. Thus, where a regimental surgeon of the civil war reported 15 cases of diarrhea, all ending in return to duty, the regimental surgeon of the present time reports of each case the name, rank, company, regiment, date of admission to sick report, complications, etc., and date of return to duty. Our present reports are therefore of much greater value for Pension Office purposes than were those of the civil war.

The following tabulations compiled from reports received up to October 25, 1898, are submitted to show the incidence of sickness and mortality on the troops during the five months, May 1 to September 30, 1898. The first presents the absolute number of admissions and deaths from typhoid fever, malarial fevers, diarrheal diseases, and from all causes, during each of the months, while the second gives the ratios per thousand calculated from these numbers.

Our medical officers have reported in full concerning 1,715 deaths,* of which number 640 were occasioned by typhoid fever, 97 by malarial fevers, and 39 by diarrhea and dysentery. The fact that the mean strength for September is only 130,763 shows that all the reports for that month have not as yet been received.

The table giving the ratios per thousand of strength enables comparisons to be made with facility. The death rates for May and June were not in excess of those of the Army in time of peace. In July the rate became somewhat higher than that of most well-cared-for cities, 2.15 for the month, or the equivalent of an annual rate of 25.80 per thousand living. In August it became excessive, 4.08 for the month, equal to an annual rate of 48.96 per thousand. In September the influence of the energetic measures taken in July and August to improve the health of the Army becomes manifest in the falling of the death rate to 2.45 or the equivalent of an annual rate of 29.40. The same progression to an acme in August, with a sudden fall in September is seen in the various ratios given under the specific titles typhoid fever, malarial fever, and diarrheal diseases. This is exceedingly gratifying, and must be credited, as stated, to the sanitary measures adopted, for our experience in the civil war demonstrates that in the absence of these measures the high ratio of August would have been continued for many months to come.

* Reports to the Adjutant-General to September 30, 1898, show 345 killed and died of wounds and 2,485 died of disease in a mean strength of 275,000 men.

Admission to sick report and deaths in the United States Army, May to September, 1898.

[Reported to October 25, 1898.]

Month.	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May.....	151,685	10,208	70	60	3	565	.....	2,826	.....
June.....	159,793	24,339	112	414	14	3,120	.....	7,735	4
July.....	203,250	41,664	437	3,041	167	9,061	13	9,524	8
August.....	190,347	53,705	776	6,172	353	15,519	63	10,101	26
September.....	130,763	28,544	320	2,438	103	10,548	21	3,529	1
Total.....	167,168	158,480	1,715	12,125	640	38,833	97	33,715	39

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

Month.	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May.....	151,685	67.30	0.46	0.40	0.02	3.72	.....	18.63	.....
June.....	159,793	152.32	.70	2.59	.09	19.53	.....	48.41	0.03
July.....	203,250	204.99	2.15	14.96	.82	44.68	0.06	46.86	.04
August.....	190,347	282.14	4.08	32.43	1.85	81.53	.33	53.07	.14
September.....	130,763	218.29	2.45	18.64	.79	80.67	.16	26.99	.008

I submit herewith for comparison with the statistics given above two tabulations from the records of the Medical and Surgical History of the War of the Rebellion. The first gives the absolute figures reported monthly by medical officers for the thirteen months, May, 1861, to May, 1862, inclusive; the second gives the ratios deduced from these numbers. Attention is invited, in the first place, to the relatively large number of admissions from all causes reported monthly during the civil war, and secondly to the high death rates. Even in May, June, and July, when the army consisted only of the 75,000 volunteers called out by the proclamation of April 15, 1861, the death rates were higher than during the first three months of our recent aggregation of more than three times as many raw troops. And these high death rates continued month after month, becoming higher as the new levies under the 500,000 call were gradually enrolled and became exposed to the insanitary conditions of the camps of that period. In November, 1861, the death rate was higher than that of the month of August last, which so alarmed the country and virtually broke up the army as a fighting machine. December, 1861, and January and February, 1862, had equally high death rates. Disease increased its ravages in March to 6.08, and in April, 1862, it reached its acme, with 3,331 deaths during the month out of a force of 395,703 men, or 8.42 deaths out of every thousand men, as compared with 4.08, the maximum monthly rate of the Spanish-American war.

Similar remarks might be made concerning the relative prevalence and mortality of typhoid and malarial fevers and diarrhea and dysentery, but what I have already said will suffice to direct attention to the points of interest in these tables.

Admissions to sick report and deaths in the United States Army, May, 1861, to May, 1862, inclusive.

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1861.									
May.....	16,161	5,130	19	49	5	132	1	1,595	.....
June.....	66,950	22,587	99	197	15	1,079	.....	8,619	4
July.....	69,118	23,904	194	285	29	2,037	4	9,051	13
August.....	109,054	41,387	330	857	110	5,484	17	13,252	27
September.....	162,217	51,810	438	1,733	205	9,931	38	12,846	38
October.....	252,037	74,284	848	3,438	382	15,305	64	18,464	82
November.....	296,025	83,436	1,265	4,449	539	12,842	83	16,248	94
December.....	336,745	89,892	1,578	3,896	588	10,122	91	13,581	112
1862.									
January.....	343,572	85,081	1,664	3,180	480	6,458	66	12,727	69
February.....	316,568	66,847	1,515	2,362	446	5,759	60	9,842	58
March.....	314,961	64,468	1,915	1,934	495	5,353	61	14,366	79
April.....	395,713	106,075	3,331	3,867	785	11,586	96	33,626	159
May.....	388,492	95,724	3,077	4,393	1,092	14,354	90	33,020	231

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

	Mean strength.	Total admis- sions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admis- sions.	Deaths.	Admis- sions.	Deaths.	Admis- sions.	Deaths.
1861.									
May.....	16,161	317.45	1.18	3.03	0.31	8.17	0.06	98.69	-----
June.....	66,950	337.37	1.48	2.94	.22	16.12	-----	128.74	0.06
July.....	69,118	345.84	2.81	4.12	.42	29.47	.06	130.95	.19
August.....	109,054	379.51	3.03	7.86	1.01	50.29	.16	121.52	.25
September.....	162,217	319.39	2.70	10.66	1.26	61.22	.23	79.18	.23
October.....	252,037	294.73	3.36	13.64	1.52	60.73	.25	73.25	.33
November.....	296,025	281.84	4.27	15.03	1.82	43.37	.28	54.89	.32
December.....	336,745	266.94	4.69	11.30	1.75	30.06	.27	40.33	.33
1862.									
January.....	343,572	247.63	4.84	9.26	1.40	18.80	.19	37.04	.20
February.....	316,568	211.16	4.70	7.46	1.41	18.19	.19	31.09	.18
March.....	314,961	204.69	6.08	6.14	1.57	17.00	.19	45.62	.25
April.....	395,713	268.06	8.42	9.77	1.98	29.28	.22	84.98	.40
May.....	388,492	246.39	7.92	11.31	2.81	36.95	.21	85.04	.59

I submit also tables of absolute numbers and of ratios by which the incidence of sickness and mortality of the regular and volunteer troops may be contrasted. From these it will be seen that the exposures of the regular troops during the Santiago campaign gave them from June to September a higher death rate than the volunteers, and that the rate of the latter during August, the month of maximum mortality, was 3.62, as compared with 5.89 among the regular troops:

Admissions to sick report and deaths in the United States Army, May to September, 1898.

[Reported to October 25, 1898.]

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May:									
Regulars	46, 157	4, 244	15	29	2	205	.....	1, 411	.....
Volunteers	105, 528	5, 964	55	31	1	360	.....	1, 415	.....
June:									
Regulars	32, 887	3, 702	37	74	2	299	.....	872	1
Volunteers	126, 906	20, 637	75	340	12	2, 821	.....	6, 863	3
July:									
Regulars	40, 111	8, 684	163	697	39	1, 988	9	1, 606	2
Volunteers	163, 139	32, 980	274	2, 344	128	7, 693	4	7, 918	6
August:									
Regulars	38, 182	12, 089	225	1, 549	64	4, 283	19	2, 186	5
Volunteers	152, 165	41, 616	551	4, 623	289	11, 236	44	7, 915	21
September:									
Regulars	27, 082	10, 682	82	619	35	5, 154	7	1, 243	.....
Volunteers	103, 681	17, 862	238	1, 819	68	5, 394	14	2, 286	1
Total:									
Regulars	36, 884	39, 401	522	2, 968	142	11, 929	35	7, 318	8
Volunteers	130, 284	119, 059	1, 193	9, 157	498	26, 904	62	26, 397	31

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May:									
Regulars	46, 157	91.95	0.32	0.63	0.04	4.44	.....	30.37	.....
Volunteers	105, 528	56.52	.52	.29	.01	3.41	.....	13.41	.....
June:									
Regulars	32, 887	112.58	1.13	2.26	.06	9.04	.....	26.52	0.03
Volunteers	126, 906	162.62	.59	2.68	.10	22.23	.....	54.08	.03
July:									
Regulars	40, 111	216.50	4.06	17.38	.97	49.56	0.22	40.04	.05
Volunteers	163, 139	202.18	1.68	14.37	.79	43.47	.03	48.51	.04
August:									
Regulars	38, 182	316.62	5.89	40.57	1.68	112.17	.50	57.25	.13
Volunteers	152, 165	273.49	3.62	30.38	1.90	73.85	.29	52.02	.14
September:									
Regulars	27, 082	394.43	3.03	22.86	1.29	190.31	.26	45.90	.....
Volunteers	103, 681	172.28	2.30	17.54	.66	52.02	.14	22.05	.01
Total:									
Regulars	36, 884	1,068.24	14.15	80.47	3.85	323.42	.95	198.40	.22
Volunteers	130, 284	913.84	9.16	70.28	3.82	206.60	.48	202.61	.24

VOLUNTEER RELIEF WORK.

My attitude toward relief organizations is shown by an indorsement dated May 5 upon a letter addressed by Rev. Henry C. McCook, of Philadelphia, to the President and referred to me for remark:

MAY 5, 1898.

Respectfully returned to the Adjutant-General of the Army.

The plan proposed for the organization of a relief association appears to have been well considered, and the object in view will commend itself to every patriotic citizen. But it is a question whether the President should give special privileges to any particular organization. Other prominent individuals in different parts of the country may be organizing for the same purpose. One such proposition has come to me from Chicago. While I approve in a general way of organization for the relief work proposed, it appears to me that it will be best not to give in advance exclusive privileges to any one particular organization. In case of need assistance should be accepted from any organization prepared to give it.

This has been my guiding principle throughout, that relief when needed should be promptly accepted without reference to the source from which it comes. The relief afforded by the National Red Cross at Siboney was promptly accepted by the surgeons on the spot, but it is evident that it was entirely inadequate to meet the emergency.

A committee of the American National Red Cross Association called upon me in my office in Washington some time in advance of the landing of our troops in Santiago, making an offer of assistance. I received them most courteously and advised them to use their resources in fitting up a hospital ship, telling them that a hospital ship was now being fitted up for the use of the Medical Department, but that it was not at all improbable that an emergency would arise which would overtax our resources, and that in such an event a hospital ship properly equipped, having on board a corps of doctors and nurses, would be a most valuable auxiliary.

The American National Red Cross Association has had full authority to send agents and supplies to all our camps since June 9, 1898.

The following letter was sent by me to every chief surgeon of a department or independent army in the field on June 9, 1898:

The Secretary of War has approved of the following proposition made by the American National Red Cross Association, and the chief surgeons of army corps and divisions will cooperate with the authorized agents of this association for the purpose indicated.

"We can put any desired amount of hospital supplies—ice, malted milk, condensed milk, Mellin's food, etc.—into any of the volunteer camps in a few hours. Will you be kind enough to bring this letter to the attention of Secretary Alger and ask him if there is any objection to our appointing a Red Cross representative to report to the commanding officer and the chief surgeons in every camp, confer with them as to their immediate needs, and, if anything of any kind is wanting, open there a Red Cross station and send in the supplies. We can do this, not in a few weeks or a few days, but in a few hours, and can furnish any quantity of any desired luxury or delicacy for hospital use. We hereby tender our aid and put our organization at the War Department's service for cooperation in this field."

In accordance with their promise the American National Red Cross Association has had agents in all of our principal camps and has contributed supplies of various kinds in a most liberal manner for the use of our field hospitals. The value of the assistance rendered by them has been highly appreciated by medical officers generally. Other organizations which have rendered very valuable services are the National Relief Commission, having its headquarters in Philadelphia, and the Massachusetts Volunteer Aid Association, with headquarters in Boston. Both of these organizations fitted out hospital ships, which were placed at my service for the transportation of our sick from Porto Rico, and I take pleasure in testifying to the valuable services rendered by the yacht *May*, of the National Relief Commission, and the hospital ship *Bay State*, of the Massachusetts Volunteer Aid Association.

SPECIAL FUND.

Sums of money, varying from 33 cents, sent by Master Oliver S. Whitaker, of Detroit, Mich., to \$5,000, by Mr. Cleveland H. Dodge, chairman of the supply committee, National Red Cross Society, have been sent to me to be used according to my discretion for the benefit of our sick and wounded soldiers. In all, I have received \$24,244.94. The largest contributors have been: The Colonial Dames of America, through the treasurer, Miss E. B. Nicholas, of Washington, D. C., \$3,500. The Red Cross Society, through Mr. Cleveland H. Dodge,

chairman supply committee, \$5,000. The Red Cross Auxiliary, No. 3, through Mrs. Winthrop Cowdin, of New York, \$2,000. The Women's War Relief Association, through Mrs. Victoria Raymond, treasurer (contributed for hospital ship *Relief*), \$2,275. The Colonial Dames of New York State, through Mrs. Mary J. Chauncey, secretary, \$500. The War Emergency Relief Board, Cleveland, Ohio, through Mrs. K. V. Painter, \$600. The Blue Anchor Society of New York, through Miss Alice Sandford, \$250. The Rhode Island Sanitary Relief Association, of Newport, \$500. The Society of "Spinners," through Mrs. Harriet T. Thorne, Bridgeport, Conn., \$300. The Women's Aid Society, of Rhode Island, through Mrs. Wm. M. Greene, \$600. The Brooklawn Country Club, through Mr. Charles Sherwood, of Bridgeport, Conn., \$110.50. The ladies of Jersey City, through Mrs. James H. Noe, \$600. Mrs. Jonathan Thorne, of Bridgeport, Conn., \$300. The General Council of Colonial Wars, of Philadelphia, \$1,200. The Daughters of the Revolution, of Wheeling, W. Va., through Mrs. R. M. Baird, \$60. The Martha Washington Chapter, Daughters of the American Revolution, New York City, \$335. The Spanish and Portuguese Congregation and Sisterhood of Shearith Israel of New York City, through Mr. Albert J. Elias, \$494. Women's Relief Corps, Yankton, S. Dak., through Mrs. S. Nevada Hereford, \$50. The Ohio National Women's Relief Corps, through Mrs. I. T. Bagley, of Zanesville, \$700. Mrs. Robert Patterson, Chicago, Ill., \$100. Mrs. Courtland Hoppin, Pomfret Center, Conn., \$125. Dr. Annie H. Pierce, Perry, N. Y., \$125. Sale of bale of cotton at New York, Boston, Chicago, St. Louis, and Kansas City, \$2,261. W. J. A. Bliss, Lynton, England, \$100. Mr. I. I. Borgen, Mountain Lake, Minn., \$76.14. Mrs. Kate A. Wolf, Bordentown, N. J., \$60. Mrs. Paula Bronson, Summit, N. J., \$76.41. Mrs. Imogene Granbery, Lotus Lodge, Essex County, N. Y., \$100. Miss Louise Hoppin, \$380.

This money has been sent by me principally to general hospitals, to chief surgeons of army corps in the field, and to commanding officers of hospital ships, for use in the purchase of delicacies for the sick.

THE MEDICAL CORPS.

Before concluding my report of the operations of the Medical Department during our short and glorious war with Spain I feel it my duty to call special attention to the efficient services rendered by the medical officers of the Army in the various responsible positions which the exigencies of the service have made it necessary for them to fill. The inadequacy in the number of trained and experienced medical officers has been very evident and has been a source of great embarrassment to me in my efforts to meet the demands of the service; but, as a rule, our medical officers have performed the duties imposed upon them in a most loyal, intelligent, and zealous manner. They have shared with line officers the dangers of battle, and they have encountered with unflinching courage the more difficult and protracted combat with the infectious diseases which have invaded our camps and filled our hospitals. Many of them have suffered attacks of typhoid and malarial fevers, and at one time no less than 15 per cent of the corps was disabled by sickness. Of those who accompanied General Shafter's army to Santiago very few escaped serious sickness, and two of those who distinguished themselves for devotion to duty lost their lives as a result of exposure to the malign

influences which in so short a time sapped the vitality of the flower of the American army during the operations in the vicinity of Santiago. But credit is due not alone to those in the field. The labors of those on duty as chief surgeons of military departments and in charge of medical-supply depots have been enormously increased and it has required unremitting effort to meet the exigencies of the war. One officer, Lieut. Col. J. V. D. Middleton, deputy surgeon-general, has been called upon to do the double duty of chief surgeon of the Department of California and medical-supply officer at San Francisco. He has had the responsible duty of supplying the troops going to Manila, and has acquitted himself to my entire satisfaction as was to have been expected of an officer of his intelligence and experience.

Col. Charles H. Alden, assistant surgeon-general, has been next to me in responsibility, as he is in rank in the Medical Department. During the five years that he has been my principal assistant he has distinguished himself by his indefatigable industry, familiarity with all that pertains to the administration of the Medical Department, and conscientious devotion to duty. During the greater part of the war, as previously, he has had general charge of two of the most important divisions in my office—that pertaining to the purchase and issue of supplies and the hospital corps division.

The sanitary division has for many years been under the charge of Lieut. Col. Charles Smart, deputy surgeon-general, who is a recognized authority upon hygiene, sanitary chemistry, and army sanitary statistics. I can not speak too highly of his zealous and intelligent performance of the responsible duties connected with this branch of the medical service. But in addition to this he has acted as a disbursing officer, as a sanitary inspector on several occasions, and has been charged with various other important duties.

Col. Joseph P. Wright has been in charge of the medical-supply depot in St. Louis, and Lieut. Col. J. M. Brown, deputy surgeon-general, of that in New York. The demands upon these supply depots have called for the most unremitting labor, and the results accomplished under the most difficult conditions entitle these officers to special commendation.

The medical officers selected to take charge of our general hospitals and hospital ships have all distinguished themselves by their intelligent devotion to their responsible duties.

The duties imposed upon Maj. Charles Richard, who has had charge of the hospital train, have been especially important and arduous, and have been performed in a manner most creditable to him and to the medical corps. Although nearly 3,000 cases have been taken by this train from field hospitals in the camps to our general hospitals, not a word of complaint from any source has reached me with reference to this transportation service.

The chief surgeon of the army in the field, Col. Charles R. Greenleaf, assistant surgeon-general, United States Army, and the chief surgeons of the several army corps have been unremitting in their efforts to organize an efficient medical department for active military operations; but, as was to have been expected, this proved to be a task requiring both time and patience. The result has, however, been all that could have reasonably been expected when the difficulties encountered are taken fully into consideration. The amount of sickness from diseases classed by sanitarians as "preventable" has been excessive, but the conditions which have led to the wide prevalence of these diseases in our camps of instruction have been to a large extent beyond the control of the Medical Department, which has, nev-

ertheless, heroically and successfully met the difficult task of caring for a large number of seriously sick soldiers in field hospitals. The care of the sick in the field and in hospital and the administration of medical affairs in our camps has been to a large extent in the hands of the enlarged Medical Department, resulting from the organization of a volunteer army. Many of the division and brigade surgeons appointed by the President upon my recommendation and a considerable proportion of the regimental surgeons have proved themselves to be well qualified for the important duties devolving upon them, and after a few months' experience in camp have acquired a satisfactory knowledge of matters pertaining to army administration, camp sanitation, etc., which for a medical officer are quite as important as his professional qualifications.

Before closing this report I desire to call attention to the patriotic devotion to duty of the clerical force of the Surgeon-General's Office, and especially to the efficient services rendered by Mr. George A. Jones, chief clerk, and other clerks in charge of the principal divisions in my office. The enormous increase in the amount of work to be done as a result of the war, and the want of experience on the part of clerks temporarily employed to meet the emergency, has made it necessary for a considerable number of our most experienced clerks to remain at their desks until long after office hours, and often to return to their work in the evening. This they have done cheerfully and without complaint, and as a result the work of my office has not at any time fallen behind to any considerable extent.

RECOMMENDATIONS.

The increase of the enlisted strength of the Army to a total of 60,000, and the large number of new stations to be garrisoned in the islands acquired and occupied by the United States, makes an increase in the Medical Corps absolutely essential. I therefore recommend an addition to the number of medical officers now allowed by law of 2 assistant surgeons-general with the rank of colonel, 6 deputy surgeons-general with the rank of lieutenant-colonel, 30 surgeons with the rank of major, and 50 assistant surgeons with the rank of first lieutenant.

This recommendation is based upon the present organization of the Army. Any increase made by Congress during the coming session will necessitate a further increase of the Medical Corps.

REPORTS AND PAPERS.

Lastly, I invite attention to certain circulars issued by me and to reports and papers rendered by medical officers which illustrate the work of the Medical Department and the many difficulties under which it was accomplished:

CIRCULARS FROM THE OFFICE OF THE SURGEON-GENERAL OF THE ARMY.

[Circular No. 1.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, April 25, 1898.

In time of war a great responsibility rests upon medical officers of the Army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that, as a rule, medical officers

of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called upon for service in a tropical or semitropical country during the sickly season. In Cuba our armies will have to contend not only with malarial fevers and the usual camp diseases—typhoid fever, diarrhea, and dysentery—but they will be more or less exposed in localities where yellow fever is endemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers, and of all others responsible for the health of our troops in the field, is invited to the following recommendations:

When practicable camps should be established on high and well-drained ground not previously occupied.

Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered with fresh earth or quicklime or ashes three times a day.

New sinks should be dug and old ones filled when the contents of the old ones are two feet from the surface of the ground.

Every man should be punished who fails to make use of the sinks.

All kitchen refuse should be promptly buried and perfect sanitary police maintained.

Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer.

Every case of fever should receive prompt attention. If albumen is found in the urine of a patient with fever it should be considered suspicious (of yellow fever), and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent) or of chloride of lime (6 ounces to gallon of water), or with milk of lime, made from fresh quicklime.

Whenever a case of yellow fever occurs in camp, the troops should be promptly moved to a fresh camping ground located a mile or more from the infected camp.

No doubt typhoid fever, camp diarrhea, and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served in the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way, or by surface drainage.

If it can be avoided, marches should not be made in the hottest part of the day—from 10 a. m. to 5 p. m.

When called upon for duty at night or early in the morning, a cup of hot coffee should be taken.

It is unsafe to eat heartily or drink freely when greatly fatigued or overheated. Ripe fruit may be eaten in moderation, but green or overripe fruit will give rise to bowel complaints. Food should be thoroughly cooked and free from fermentation or putrefactive changes.

In decidedly malarious localities, from 3 to 5 grains of quinine may be taken in the early morning as a prophylactic, but the taking of quinine as a routine practice should only be recommended under exceptional circumstances.

Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dews the first opportunity should be taken to dry it in the sun or by fire.

[Circular No. 3.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., May 18, 1898.

For the information of chief surgeons in organizing the medical department and hospital corps of their commands, the following, relating to the duties of medical officers in the field, is published.

Duties of chief surgeons of corps.—The chief surgeon of a corps is held responsible for the proper and effective management of the medical service of the command.

He should keep a register of the medical officers and hospital corps, making assignments and issuing orders and instructions with the approval of and "by

order" of the Major-General Commanding, if authorized to do so. He should make himself acquainted with the sanitary conditions affecting the troops, the efficiency of the field hospitals and of the ambulance companies, and should call for weekly reports of sick and wounded and of the personnel and means of transportation of the hospital corps. All reports and papers not requiring special action should be checked off and receive the stamp of his office before transmittal. Such papers include personal reports of medical officers, monthly reports of sick and wounded, of the hospital corps and of the hospital fund, and sanitary reports from chief surgeons of brigades and divisions; also the lists of wounded called for after an engagement. A copy of the action taken on all papers referred to him or forwarded by him should be made in an indorsement book. Such papers include those relating to resignations, leave of absence, or discharge on account of disability, requisitions for medical and hospital and hospital corps supplies, and all recommendations or complaints referring to the medical service or affecting the health and well-being of the troops. Copies of orders and letters should be made and placed on file, and all circulars and orders from the Surgeon-General or the Chief Surgeon of the Army should be published without delay to the chief surgeons of divisions.

Prior to a movement, the chief surgeon should verify, by personal inspection, the condition of the hospitals and of the hospital corps companies and their trains, and should make all the arrangements needful for the probable exigencies of the campaign. He should see that the assignments by chief surgeons of divisions to positions on the operating staff of the field hospitals include the best surgical skill of each division. On the march, he should accompany the staff and acquaint himself with the topography of the country; and when an engagement is imminent he should indicate to chief surgeons of divisions the localities best suited for the establishment of the field hospitals. He should inspect these from time to time, and exercise general supervision over the first aid and ambulance stations and the movement of the wounded to the hospitals. He should also supervise the movement of sick and wounded to the base or general hospitals, providing transportation and detailing medical officers and attendants for their care. When absent on such duties he should leave a competent medical officer with the staff to represent him and to inform him of important changes in the military conditions. The Commanding General should be kept informed of the work of the Medical Department, and should always be consulted in matters of importance.

Duties of chief surgeons of divisions.—The chief surgeon of a division supervises the medical and hospital corps service of the division. He should transmit official reports and papers, with the stamp of his office if routine in character, or with his views indorsed thereon if the subject appears to call for this action. He should have frequent personal communication with the chief surgeon of the corps, and should endeavor to carry out the views of the latter on behalf of the troops. His usual position is with the staff, but he should make frequent visits to the division hospital and the ambulance company, to oversee their work. He should detail one medical officer in rotation as officer of the day, who, on the march, should keep him informed of any noteworthy occurrence, and who, in camp, should visit each regiment of the division to report on its hygienic and sanitary conditions. Before an engagement he should see that the field hospital is properly established and that the operating surgeons and their assistants are at their proper stations. During and after the engagement he should supervise the movement of the wounded from the ambulance stations to the hospitals.

Duties of chief surgeons of brigades.—The chief surgeon of a brigade is the adviser of the brigade commander in all medical and sanitary questions concerning the command. He should call for a weekly (or daily, as may be required) report of sick and wounded from regimental surgeons, and of the detailed members of the hospital corps on duty with them. He should forward the formal reports of these surgeons, and promulgate orders from brigade and higher authorities. He should keep careful watch over the health of the brigade, reporting in writing from time to time, as may be required, and consulting in emergencies with the chief surgeon of the division. During and after an engagement he should supervise the work at the first-aid stations and the removal of the wounded to the ambulance stations, unless on account of his superior ability, he has been assigned to duty at the operating tables, in which case a competent officer should be detailed to represent him temporarily on the staff of the brigade.

Duties of regimental surgeons.—The regimental surgeon is in sanitary matters the adviser of the regimental commander. On the march and in camp he should examine the sick with a view to their proper treatment and disposition. He is responsible for any unexpendable medical and hospital property issued for the use of the regiment. His supplies of medicines, etc., should be renewed by requisition.

on the surgeon in charge of the hospital. Members of the hospital corps on duty with the division are detailed to duty with him. Daily, after sick call, he should send a morning report of sick and wounded and of the hospital corps to the regimental commander, with a duplicate to the chief surgeon of the brigade. He should keep, as a register of sick and wounded, a retained copy of the monthly report forwarded through the offices of chief surgeons to the Surgeon-General; cases treated in the division field hospital should be borne on this report as so treated. He should forward monthly or when his official station has been changed a personal report on a memorandum slip. After every engagement a list of wounded of the command should be forwarded. If the regimental surgeon is, by order of the chief surgeon, placed on temporary special duty, the senior medical officer with the command will perform the duties of the regimental surgeon. During an engagement he should serve at the first-aid stations.

Duties of surgeons in charge of division hospitals.—The surgeon in charge of a division hospital is responsible for the care of the sick and wounded on the march and in camp, and for the comfort and general welfare of the wounded when brought to the hospital by the ambulance service. He should direct the unpacking of the wagons for the establishment of so much of the hospital as may be necessary, and the subsequent repacking when the march is to be resumed. He should superintend the admission, return to duty, or transfer to base hospitals of his patients. As commanding officer of the hospital corps detachment he should keep the accounts of the enlisted men on duty at the hospital. He should make timely requisition for medicines, medical and hospital stores, supplies and property, for the care, expenditure, and use of which he is held responsible. He should supply regimental and other medical officers of the division with such articles as may be required and are available for the treatment of the sick. He should send a daily report of sick and wounded and of the hospital corps to the chief surgeon, and transmit to the Surgeon-General similar reports for the month, with a statement of the hospital fund. After an engagement he should forward lists of wounded, and on sending patients to base hospitals he should furnish transfer lists to the senior surgeon accompanying them. Medical officers may be assigned to assist him in the management of the hospital. One of these should act as executive officer, aiding the surgeon in charge in the work of supervision, and having special charge of the records. Another should superintend the cooking and diet of the hospital, drawing rations from the Subsistence Department, and issuing them for use and keeping the accounts of the hospital fund. He should also have special charge of the hospital stores, and of such articles of property as are connected with the cooking and serving of food. Others should be assigned as attending surgeons to care for the sick on the march and in camp, and during an engagement to look after the management of the wards, and to make notes of operative procedures, deaths, and of the progress of cases for subsequent report to the surgeon in charge and entry on the records of the hospital.

Duties of medical officers in command of ambulance companies.—The medical officer, in command of the ambulance company is charged with the care of the pay, clothing, and subsistence of his men, and is held responsible for the care of ambulances and other wagons, tents, horses, mules, forage, etc. His subaltern officers assist him in the discharge of these duties. During and after an engagement he is responsible for the safe and speedy transportation of the wounded on litters and in ambulance wagons from the field to the hospital by way of the first-aid and ambulance stations, which latter he should organize.

Medical officers of the Volunteer Army should make themselves familiar with the provisions and requirements of the Manual for the Medical Department, the paragraphs of Army Regulations relating to the Medical Department, the Drill Regulations for the Hospital Corps, and the chapters in Part I of the Handbook for the Hospital Corps, by Deputy Surg. Gen. Charles Smart.

[Circular No. 4.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, May 31, 1898.

The Quartermaster-General has been authorized to provide filters for the use of the Army. The filters recommended by the Surgeon-General are the Berkefeld cylinder and the Maignen asbestos filter. These filters are intended to supplement each other, and the use of both is required to obtain a plentiful supply of water free from the germs of disease. Medical and company officers should

have a thorough understanding of the intention and action of each of these filters, that the full benefit of their use may be insured to the troops.

The Berkefeld filter is a specially prepared earthenware cylinder, through the pores of which the water has to be forced by the exercise of considerable piston pressure. The pores are so small that they exclude or filter out, not only all particles which would give a turbidity or cloudiness to the water, but those more minute particles which are the active agents in the production of typhoid fever and other camp diseases. The filter is, therefore, an efficient filter, but the smallness of the pores which gives it its efficiency constitutes an objection to its use in practice. Its pores speedily become choked by a coating of filtered particles. If greater pressure be used to increase the rapidity of filtration, the connections of the cylinder may become strained and the filter be rendered valueless, while if the cylinder be removed and its surface scrubbed, it is exposed to the risk of fracture unless handled with the utmost care.

The Maignen asbestos filter has larger pores than the other. Water passes through it more readily and under slight pressure. The coarser particles which give a cloudiness or turbidity to a water are strained out, but as the germs of disease are not excluded, the filtration from a sanitary point of view is not efficient.

It will be seen, however, that the Maignen filter may be put advantageously to use in preparing water for purification by the Berkefeld cylinder. By straining out the particles which otherwise would choke the Berkefeld filter, it enables the latter to operate as rapidly as itself and does away with the necessity for increased pressure or frequent interruptions for scrubbing the porous cylinder.

To use the two filters in combination, the bucket or other receptacle containing the unfiltered water and the asbestos filter should be securely fixed at a height of 5 or 6 feet from the ground. From this bucket, the clear but not necessarily pure water is delivered by the rubber tube of the filter into another bucket properly placed to receive it, and to admit of the pumping of the filtered water through the Berkefeld cylinder into vessels for storage or use.

It has been found that asbestos-filtered water can be rendered sterile by the Berkefeld apparatus at the rate of about 5 gallons in twelve minutes, the pump working easily.

The outer covering of the Maignen filter should be kept free from deposits of clay or other matters by brushing or scrubbing. If need be, the outer casing of asbestos cloth may be removed, washed, and replaced. The filter as a whole may be sterilized when necessary by boiling in water. When not in use it should be exposed to the air as much as possible.

The Berkefeld filter is worked by placing the pump in the vessel containing the asbestos-filtered water, with its nozzle resting firmly on the bottom. The piston is then worked without jerking, while counter pressure is made with the left hand on the top of the barrel. To keep the cylinder in perfect condition, when thus used, it should be sterilized every fourth day. The thumbscrews on top should be unloosed, and the cylinder, having been lifted carefully from its metal case, should be put in water of ordinary temperature, which should be brought to the boiling point and kept at this temperature for five minutes. When removed from the hot water it should be allowed to cool before being replaced for use. The cylinder is liable to become cracked and useless by sudden changes of temperature. If a cracked or worn-out cylinder has to be replaced, the small wheel should be unscrewed from the lower end of the old cylinder and screwed upon the new one. The nut at the bottom of a cylinder should never be unscrewed.

[Circular No. 5.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, August 8, 1898.

The attention of medical officers is invited to Circular No. 1 from this office, dated Washington, April 25, 1898.

The extensive prevalence of typhoid fever in camps of instruction indicates that the sanitary recommendations made in this circular have not been carried out. If medical officers have failed to make the proper recommendations as indicated, the responsibility rests with them. If the recommendations have been made and not acted upon by those having authority in the various camps, the responsibility is not with the Medical Department, but these recommendations should be repeated and commanding officers urged to move their camps at frequent intervals and to maintain a strict sanitary police.

[Circular No. 6.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, August 12, 1898.

Chief surgeons of army corps, of divisions, and of smaller independent commands are expected to make timely requisition for medical supplies. It must be remembered that some delay is often unavoidable in putting up supplies at the supply depots and in their transportation to the point at which they are needed. In an unexpected emergency telegraphic requisition must be made and supplies will be sent by express; but it must be remembered that this mode of transportation is very expensive and that failure to make requisition in advance of immediate needs entails unnecessary expense upon the Government. Division and field hospitals in which typhoid fever and other serious cases are treated should be liberally supplied with all articles necessary for the treatment and comfort of the sick. The field supply table applies only to mobile commands and division hospitals to accompany them on short notice.

[Circular No. 7.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, September 5, 1898.

The attention of chief surgeons and of all medical officers on duty with troops in the field is called to the following paragraphs from the Manual for the Medical Department:

"92. When accumulations of organic material undergoing decomposition can not be removed or buried, they may be treated with an antiseptic solution or with freshly burned quicklime. Quicklime is also a valuable disinfectant, and may be substituted for the more expensive chloride of lime for disinfection of typhoid and cholera excreta, etc. For this purpose freshly prepared milk of lime should be used, containing about 1 part, by weight, of hydrate of lime to 8 of water.

"93. During the prevalence of an epidemic, or when there is reason to believe that infectious material has been introduced from any source, latrines and cess-pools may be treated with milk of lime in the proportion of 5 parts to 100 parts of the contents of the vault and the daily addition of 10 parts for 100 parts of daily increment of feces."

Quicklime should be purchased in such quantities as may be necessary for the purpose of carrying out these instructions, and vouchers sent to the Surgeon-General of the Army for payment from the medical and hospital appropriation.

REPORT OF OPERATIONS OF THE MEDICAL DEPARTMENT AT SANTIAGO, CUBA,
AND IN PORTO RICO, BY COL. CHARLES R. GREENLEAF, CHIEF SURGEON ARMY
IN THE FIELD.

[Dated August 24, 1898.]

Leaving Charleston, S. C., on the 8th of July, 1898, by the U. S. S. *Yale*, we found on board the Sixth Massachusetts Volunteers and one company of the Sixth Illinois, with General Garretson's brigade headquarters, these troops having previously been at Camp Alger. During the voyage to Cuba a number of cases of typhoid fever developed. They were as well taken care of as circumstances would permit, under the direction of Maj. George W. Crile, brigade surgeon of volunteers.

Arriving at Siboney, Cuba, twenty cases were sent during my absence from the ship, by order of Captain Wise, of the Navy, and transferred to the steamship *Seneca*, to be sent north.

It was at once reported to me that yellow fever had made its appearance among the troops in Cuba, and I proceeded to the shore to investigate the matter. I found that immediately upon landing the troops had occupied all the houses in the little town of Siboney, and along the line of march into the island had also occupied blockhouses or native huts without taking any measures for their disinfection or fumigation; they had also been brought in contact with refugees from Santiago.

Prior to leaving the United States I had drawn up very carefully, after consultation with Dr. Guiteras, the yellow-fever expert, and others, a system of preventive measures to be put in force as soon as the troops should land; this was

communicated to the chief surgeon of the Fifth Corps. Having been informed by the officers of the Jaragua Iron Company, located at Siboney and Daiquiri, that the buildings occupied by their operatives had during each year been inhabited by persons with yellow fever, explicit directions were given to destroy by fire immediately after landing every building at this place and on the line of march of the troops. These directions were, at my suggestion, telegraphed from Washington by General Miles to the commanding general of the Fifth Army Corps. A small yellow-fever hospital and a camp of detention close to the borders of the town had been established before our arrival, but the large number of nonimmunes continually coming into the town and entering these infected buildings was rapidly adding to the number of these infected cases. I therefore, by authority of the general commanding, proceeded to have every building in the town that had been occupied as habitations destroyed by fire, hoping that by this action the source of infection at this place would be removed and a sufficient surface of sterilized ground obtained for the location of a large camp of detention. It became apparent within a few days that the entire army had become infected, as the reports from medical officers showed that every organization furnished one or more cases. I accordingly recommended the immediate removal of such troops as could be moved without detriment to the military situation, and after the capitulation recommended the removal of the entire army from the trenches, either towards Santiago, making fresh camps every second day, or backward into the mountains, and in the event of failure to stamp out the disease by this method, to ship the army as rapidly as possible back to the United States. To all these recommendations General Miles gave his cordial assent, and promptly issued the necessary orders.

I was much embarrassed in taking care of the sick by the lack of nurses and proper guards, and applied twice to the general commanding the Fifth Army Corps for troops to perform this duty, but he declined to furnish them; on my appeal to General Miles, however, he promptly ordered the whole of the Twenty-fourth Infantry to report to me for duty. This regiment made a night march, arriving at Siboney early the next morning; the necessity for aid was so urgent that I requested the commanding officer to call for volunteers from that regiment to serve in the yellow-fever hospitals; this request brought forth a prompt response, more than twice the number of men required volunteering for this perilous duty. I desire to bring to the notice of the General Commanding the Army the conduct of these men; the cheerfulness with which they did their duty under the most adverse circumstances, and the promptness with which they volunteered for any service with the sick deserves in my opinion a special commendation.

The hospital accommodations at Siboney were very limited owing to a lack of tentage. The number of medical officers for duty with the sick was inadequate, and the quantity of medical supplies on shore was insufficient; the reasons for this were a depletion of the personnel for service with transports returning wounded to the States, and a lack of facility for unloading either the transports or the hospital ship *Relief*, on board of which ample supplies were stored; it was only after forcible removal of pontoons, upon my own responsibility, from a transport loaded with engineering material, that the supplies from the *Relief* were unloaded.

Two immune medical officers were taken from the *Relief* for duty in the yellow-fever hospital, and all loose tentage that could be obtained was sent to increase its capacity. The peculiar conditions made it impossible to furnish such care and attention to the sick as we desired, but not in the history of any war did medical officers of the army labor with more zeal and more self-sacrifice than did the officers under my personal observation at Siboney and its vicinity.

To Maj. Louis A. La Garde, surgeon, United States Volunteers, and Capt. M. W. Ireland, assistant surgeon, United States Army, too much praise can not be given for their untiring devotion in the arduous and trying duties that were imposed upon them, and if there is any promotion the Government can give them for their service I most cordially commend them for it.

Leaving Siboney on the 18th of July we proceeded to Guantanamo Bay, the rendezvous for the Porto Rican expedition. At this place we found a detachment of doctors and female nurses on board the steamship *Lampasas* that had been sent to work with the Red Cross Association. As they could not go into Cuba or land from their own ship, I determined to use them in the Porto Rican expedition, and subsequent events demonstrated the wisdom of this action, since the increase of typhoid-fever cases on board the steamship *Yale* was very large, requiring the transfer of some 80-odd to the ship on which these nurses were quartered, which I converted into a quasi-hospital ship, notifying the medical officers in charge of the various transports to send their sick to it, and with them descriptive lists, complete transfer lists, and sufficient quantities of medical supplies and rations

to last during the return voyage to the States; the only things, however, that the doctors furnished were the patients. When en route to Porto Rico two deaths occurred on the transports, the interments in each case being at sea. To avoid a repetition of the disregard of sanitary measures that occurred in the army in Cuba, other and more explicit directions were recommended, which General Miles promulgated in orders.

Arriving at Guanica on the 25th of July, the town and harbor were occupied, and the next morning a sharp engagement occurred, in which we had four men wounded. These were cared for at the brigade hospital. Their wounds were so slight that transfer to the *Lampasas* was not considered necessary. More transports arrived while we were at Guanica, each one bringing a large detachment of typhoid cases, which were transferred to the *Lampasas*. The health of the troops on shore while we were at Guanica was good, although some typhoid cases developed, but later, heavy rains occurring, a large sick report speedily resulted.

Arriving at Ponce on the 28th July, I found a large and well-appointed military hospital on the outskirts of the town, containing 44 sick Spanish soldiers who had been abandoned by their army in its retreat. As they were without proper food, medicines, or medical attendants General Miles instructed me to provide for them, and I employed a Porto Rican physician for that purpose, who has done excellent service up to this time. The men as they recovered were paroled, and finally the few remaining were removed, leaving the large hospital free for our own sick.

The appointment of Maj. J. McG. Woodbury, surgeon, United States Volunteers, was recommended as sanitary inspector, and instructions were given him to put the town of Ponce, which was in a filthy condition, into as clean a state as possible. He convened a meeting of the local physicians, organized a board of health, and caused a vigorous cleaning up of the streets and alleyways of the town. All buildings that were likely to be occupied by troops were cleaned, disinfected, and fumigated, and no one was permitted to enter them until a certificate from the sanitary inspector as to their cleanliness was given. Major Woodbury's report on this subject is herewith appended. Similar sanitary precautions were taken with the camps occupied by our men, and every effort was made to prevent the introduction of sickness.

As soon as practicable after our arrival the sick on the steamers *Obdam* and *Lampasas* were sent north, with a sufficient number of medical officers and hospital attendants and such dressings and comforts as could be spared. Similar difficulties were encountered at this place in the unloading of medical supplies from the transports to those we met at Siboney, although in a minor degree; and the sick were subject to much discomfort from the lack of tentage, ambulance transportation, and medicines for several days until these could be gotten on shore. Instances occurred where the hospital supplies would be on one transport, the tents on another, and the medical officers on a third.

The military hospital before referred to was in an exceedingly filthy condition, the privies overflowing with liquid excrement and the various rooms being indescribably dirty. I placed the matter of cleaning these rooms in the hands of Major Daly, surgeon, United States Volunteers, who performed this work in a most efficient manner, and within ten days after arrival we were able to use the building as a hospital for our own men. I placed Assistant Surgeon Ten Eyck, United States Army, in charge, drawing details from the various commands for nurses, and immediately commenced the admission of patients. I also detailed Assistant Surgeon Hartsock, United States Army, as medical-supply officer, making the basement of the hospital his depot. The troops in the field were supplied with barely a sufficient number of medical officers and hospital attendants to care for such wounded as might occur in the actions that were anticipated, and I did not feel justified in drawing upon their slender resources, for which reason the service of this hospital was not as efficient as it should have been.

On the evening before the troops left their camp near Ponce to march against the Spaniards, the chief surgeon of the several divisions informed me that about 50 men would have to be left in the hospital, and I made the necessary arrangements for their reception; but during the night the building was invaded by a promiscuous crowd of stragglers, numbering nearly 150, not over two-thirds of whom required hospital accommodation. There was no guard at the hospital, and the surgeon could not control them; hence there was a good deal of confusion. I established as soon as possible a convalescent camp, under charge of the Nineteenth Infantry, to which most of these men were removed. The hospital ship *Relief* arrived at this time, and about 250 cases of sickness, together with the wounded from our immediate front, were transferred to her to be taken north. She also took on board at Mayaguez the wounded from the engagements in Gen-

eral Schwan's brigade. While she was here I took advantage of the presence of Lieutenant-Colonel Senn, chief surgeon, to investigate the cause of typhoid among the troops. His report is herewith appended. A large force of quartermaster's men was engaged to police the grounds, and within a few days the hospital and its surroundings were in very good condition. About this time instructions came from Washington to send no more sick north; but, realizing that the conditions here were not understood, I telegraphed for permission to make tent hospitals and continue shipping sick on such properly equipped hospital ships as might be sent here. My request being promptly complied with, the country in the immediate vicinity of Ponce was carefully investigated for a proper site, which was finally located on the grounds in the immediate vicinity of the military hospital. These were cleared of underbrush; roads leading to them were made and graded by the engineers, who also staked out the general plan for the hospital, and the necessary flooring and plank walks were laid by the quartermaster's department. The Surgeon-General had cabled me that 200 hospital tents would be sent here on the *Concho*, but I found on her arrival that they had been put in the bottom of the hold, the entire cargo being on the top of them, and could not be unloaded for seven or eight days; this delay led to considerable embarrassment in caring for the sick.

The continued rains, followed by the fierce heat of the sun, now began to produce a depressing effect upon the troops at the front. While the progress of typhoid seemed to be checked, it was followed by a rapid increase in the number of intestinal disorders and malarial fevers, which ran the aggregate sick report up closely to 8 per cent of the effective force, with the prospect of greater increase in the future. This fact I communicated to the Surgeon-General, and requested that hospital ships should be sent here in order that the sick might be removed from the island as quickly as possible.

The depressing effect of this climate upon northern men can only be appreciated by medical men who have served with them. They seem deprived of all recuperative power, and no sooner do they fall sick, even with slight ailments, than a physical and nervous depression follows, which aggravates the existing disease and renders the patient entirely unfit for service.

I have established camp hospitals in the several divisions comprising the army, namely, one each in Generals Brooke's, Wilson's, Henry's, and Schwan's commands, and have given orders that so soon as the central hospital at Ponce is emptied by transfer to hospital ships the ambulance trains shall be utilized to transfer the sick from the camp hospitals to the central hospital, thus being ready at all times to load any transport that may arrive in the harbor.

The medical supplies on hand are ample for current use, and due requisition has been made for their replenishment by transports that may arrive from the north.

Valuable assistance has been given by the National Relief Association of Pennsylvania in a shipload of groceries and medical comforts that was brought here on the steam yacht *May*, belonging to Mr. Van Rensselaer, of Philadelphia. These were transferred to me and distributed among the hospitals by Dr. Groff, a member of the association, under my direction.

The National Red Cross Association has also sent a considerable amount of supplies, which are, however, still unloaded on the steamship *Concho*, but will be distributed by the agent of the association under the direction of the chief surgeon.

In conclusion, I desire to bear testimony to the zealous and faithful manner in which their duties have been performed by most of the medical officers of this command, oftentimes under difficulties which appeared to be insurmountable. To Lieutenant-Colonel Huidekoper and Majors Woodbury and Crile special commendation is due for the faithful manner in which their duties have been performed; also to Assistant Surgeon Ten Eyck and Major Birmingham, now in charge of the United States general hospital at Ponce.

On the 24th instant orders were given for the return to the United States of certain of the troops on supply transports in the harbor. Recommendation was made and order issued for a careful examination of the sick by a board of medical officers in order that no person should be shipped who was unable to bear the journey. A similar examination of the entire company was ordered after arrival on the ship, and no ship was allowed to leave port until it was reported by the officer in charge to be in good condition.

REPORT OF COL. CHARLES R. GREENLEAF, CHIEF SURGEON, ARMIES IN THE FIELD.

[Dated November 5, 1898, covering the period May 3 to July 8, 1898, at which time he accompanied the Major-General Commanding the Army to Cuba and Porto Rico, and the period September 8, the date of his return to this country, to November 1, 1898.]

I assumed charge of the office of chief surgeon May 3, 1898, the duties embracing a general direction of the affairs of the medical department in the field. The wide separation of the several army corps from each other necessitated the direct transmission of records to the Surgeon-General, and I therefore have no statistical data to furnish.

As the troops then camped in their respective States were to be mobilized and prepared as quickly as possible for active service against the enemy in Cuba, my first steps were directed to an organization of the medical department for that purpose.

The acts of Congress approved April 22, 1898, increasing the military establishment and organizing a volunteer army, made no provision for the muster into service of privates of the hospital corps for the volunteer army or for commissioned medical officers additional to those of the regular and regimental staff for service in hospitals and to meet deficits made by casualties. The Surgeon-General informed me that he had asked legislation, through the Secretary of War, for the muster in of 25 privates of the hospital corps for each volunteer regiment and 50 privates for each division hospital, but up to this time no action had been taken on his recommendation. The matter was referred to the Judge-Advocate of the Army, who decided that the existing law, if slightly amended, was sufficient for the purpose, and that the force could be obtained by transfers from volunteer regiments into the regular establishment. He prepared a bill embodying these amendments, which was submitted to Congress, passed both Houses, and became law. The available personnel thereafter consisted of the hospital corps of the Regular Army, augmented by transfers from the Volunteer Army on the basis fixed by the Surgeon-General, namely, 25 men from each regiment and 50 for division hospitals, aggregating a little over 3 per cent of the effective force in the field.

The Medical Department of the Army in the field during the last three years of the civil war was administered as a composite organization, of which a division hospital in three brigade sections was the unit. Its personnel and material were drawn from the regiments and from a staff corps of surgeons of volunteers. In operating it the sick and wounded were removed from the regiments into brigade and division hospitals, from which they were transferred to large general hospitals in the North, and after recovery were sent to convalescent camps, to be finally returned to their regiments, the object of these transfers being to avoid overcrowding of the division hospitals and to keep their bed space as free as possible for emergencies caused by battle or camp disease. The success of this organization was complete, and its main features were subsequently adopted by foreign armies. Its enlisted personnel represented a little more than 5 per cent of the effective force of the Army.

Although the available force under existing law was but a trifle over 3 per cent of the effective force, it was believed by the Surgeon-General that the full quota (5 per cent) could be obtained in time of need by detail from the line of the Army, which for several years had been instructed in the elements of first aid and could therefore be depended upon to meet the emergencies of the battlefield.

Upon this basis I formulated a scheme of sanitary organization by consolidating the regimental personnel and material into division hospitals, each with a capacity of 200 beds and with an enlisted personnel of 99 men and 6 officers; a corps reserve hospital of equal size was also organized. Ambulance companies were similarly organized as auxiliaries to the division and corps hospitals, each with an enlisted personnel of 114 men and 6 medical officers. The cavalry, artillery, corps, division, and brigade headquarters were supplied independently and there were left with each regiment 1 medical officer, 1 hospital steward, and 1 private of the hospital corps.

In anticipation of a necessity that might arise during the campaign for changing the details of this scheme, authority was given chief surgeons to depart from it at their discretion, "to meet the exigencies of the camps or battlefield."

The plan was submitted to the Major-General Commanding, approved by him, and published and put in operation by me on the 20th of May. It should here be stated that an effort was made to accomplish the "muster in" to volunteer regiments of members of the hospital corps on the basis of a State quota, but through

some objection made to the method by the Adjutant-General it fell through. The publication of the orders necessary to carry out this organization was delayed, and when put in force it met with opposition from many regimental colonels, who either objected to giving up men whose places they were obliged to fill by immediate recruitment, or transferred men who were useless to the regiment by reason of vicious habits, physical disability, or stupidity. It was a repetition of the ante-bellum story of giving to the Medical Department worthless material. In some instances medical officers opposed the work under the impression that their prerogatives were infringed upon.

At this time also there was lack of material with which to work; tents, ambulances, litters, medical and surgical chests, and a variety of material absolutely necessary in the establishment of hospitals were not manufactured and were therefore not to be had. Other material equally necessary that had been issued by the Department was not available, because still in the hands of the Quartermaster's Department in transit, and the ignorance of many willing medical officers in matters of military administration made the task of perfecting this organization a difficult one.

Most of the obstacles were, however, overcome, and at my first inspection of the Army in May I found the hospital and ambulance organizations progressing toward a fair state of efficiency.

Of sanitary recommendations made to the General Commanding were:

First. The limitation of numbers in any one camp to a brigade, or at most a division.

Second. Time of remaining in camp not to exceed thirty days.

Third. Frequent inspections of camps by inspectors of the Regular Army.

Fourth. Stringent regulations regarding the care of sinks, the management of the ration and its cookery, the personal cleanliness of the men, and the general police of camps.

These were considered prime factors in the sanitation of camps and subjects which were especially liable to be disregarded by undisciplined troops, whose officers were, as a rule, as ignorant as the men in the details of military life. In all of my inspections I witnessed frequent violations of these matters and directed renewed vigilance by corps surgeons to prevent their recurrence.

My first inspection included the camps at Tampa, Fla., Mobile, Ala., Chickamauga, Ga., and Falls Church, Va.

The sanitary condition of these camps, with the exception of the one at Tampa, was what might be expected of undisciplined troops. In Tampa, mostly occupied by regular troops, the difference between the conditions of disciplined and undisciplined soldiers was well marked. The camps of the former were comparatively clean, their sinks were well attended to, their cooking properly done, their rations ample. In the latter the camps were badly located, tent space ignored, streets, etc., dirty, sinks badly policed, and the cooking indifferently done.

In all the quantities of the medical and hospital supplies were limited. As a rule, the regular troops brought with them sufficient supplies to last about three months, but in many instances the volunteer troops were destitute in this respect. Before leaving Washington the Surgeon-General informed me he had ordered, in anticipation of formal requisitions, ample supplies from the New York and St. Louis depots, but at the time of my inspection they had not arrived, and in order to meet the immediate wants of the sick of the volunteers it was necessary to draw upon the slender supplies brought by the regular troops, which were soon exhausted.

At Tampa, Mobile, and Alger the corps chief surgeons, and at Chickamauga the chief surgeon, were authorized by telegraph from the Surgeon-General to purchase in local markets such medicines as were necessary to meet the emergency. Outfits for hospitals could not, however, be obtained, and the value of the division-hospital organization was immediately demonstrated by the ability of the Medical Department to utilize such supplies as it had and care for the sick of both volunteers and regulars. At my suggestion the Surgeon-General had, early in the campaign, requested the governors of the respective States to furnish their troops with the State medical outfits until such time as he could replace them by regular supplies, since the manufacturers had not yet furnished enough for all the troops. I was informed by several of the surgeons that, while the State authorities supplied the medicines in State camps, they refused to allow them to be taken outside the limits of the State, and for this reason regiments reached camp without supplies. Fortunately the sick report was small, the aggregate not exceeding 2 per cent in any camp. This favorable condition could not be expected to last if the troops were to remain any length of time in this country, and in anticipation of a

larger sick report the Surgeon-General had ordered the construction of large general hospitals and the organization of a railway hospital train service in order that the sick might be speedily removed and the overcrowding of division hospitals avoided.

I also found that the physical examinations of soldiers at muster-in stations had been carelessly made, and a large number of men incapacitated for active service were in the ranks. Boards of medical officers were organized for the purpose of examining these men and recommending their discharge by reason of disabilities existing prior to enlistment, with a view of protecting the Government against the claims for pensions, which would at the end of the campaign undoubtedly be made.

At my second inspection in June I was met at Tampa by a report that seven cases of yellow fever had occurred at McHenry, a lumber camp in Mississippi, practically on the lines of communication with the military camps in Alabama and Florida. A conference with Dr. Guiteras, the yellow fever expert attached to the Army, Dr. Porter, the health officer of the State of Florida, and several medical officers was held at Tampa, Fla., and it was agreed that if the disease invaded Alabama it would be necessary to place the army at Mobile and Jacksonville in quarantine at points which could be best protected from invasion. The points selected were Tampa, Fernandina, and Miami, since they were each to be reached by a single line of railway and access to them could be completely controlled. The maximum force to be sent to Miami was fixed at one regiment, which was to be detained there only a few days before embarkation for Cuba. Fortunately, the disease was held in check at McHenry, and movements of troops on that account were rendered unnecessary. At the conference referred to, general recommendations for the protection of troops about to leave for Cuba, against yellow fever, were also formulated, and Colonel Pope, the chief surgeon of the Fifth Corps, was furnished with a copy of the proceedings.

While at Tampa I inspected some of the transports that were loaded with troops and supplies awaiting departure for Cuba. The condition of these vessels from a sanitary standpoint was very bad. They were overcrowded to such an extent that the men could not properly attend to the ordinary wants of nature, or keep themselves reasonably clean. The cooking arrangements were defective and the fresh air and water supply were entirely inadequate. Attention was called to the matter, but it was too late to rectify it. The general commanding, however, authorized me to appoint a board for the sanitary inspection of the transports intended for future embarkation to Cuba, and this was done under the direction of Lieutenant-Colonel O'Reilly until the arrival of a line officer, who took the matter out of his hands.

Provision for the care of the sick of the command that was about to start was also meager; a fully equipped ambulance company, as well as a division hospital, having been left on shore for want of room on the transports. No provision was made for a hospital ship to accompany the expedition; but the chief surgeon finally succeeded in obtaining the *Olivette* for that purpose and partially outfitting her. My assistant, Major Daly, later in the day had her painted, in accordance with the requirements of the Geneva Convention, and the supply officer at Tampa succeeded in placing on board of her two wagonloads of extra medical supplies.

Complaint having been made regarding the water supply at Camp Alger, I made an inspection of the camp and recommended that if it was to be retained an additional supply was necessary. The location of one of the division hospitals was bad, and was changed to a more suitable point, the corps surgeon being cautioned to watch the sanitary condition of the camp and the character of the sick report with great care, taking every precaution to prevent an increase and to transfer promptly cases that required it to the nearest general hospital.

At this time (July 8) I accompanied the General Commanding on the expedition to Cuba and Porto Rico, returning with him to the United States September 6, when I was directed to proceed to Camp Wikoff, Montauk Point, Long Island, N. Y., for the purpose of expediting the transfer of the sick from that camp to city hospitals in its vicinity. This work having been accomplished, I commenced on the 6th of October an inspection of the military camps at Jacksonville, Fla., Anniston and Huntsville, Ala., Knoxville, Tenn., Lexington, Ky., and Camp Meade, Pa., a specific duty being the instruction of the medical officers in the purpose and function of the regimental hospitals, the establishment of which had recently been ordered by the Secretary of War, and to see that they were properly equipped prior to the projected movement into Cuba.

The unexpected cessation of the war and the consequent retention of large numbers of troops in the United States had materially changed the conditions under which the field service of the Medical Department was originally organized. Camps which at first were assumed to be of the most temporary character,

intended for the organization and equipment of troops soon to face the enemy, had now become vast camps of instruction. The division hospitals, originally designed for mobile commands, had been extended into quasi-general hospitals, some of them with a capacity of 800 beds, the change in their function necessitating not only a greatly augmented force, but one of a different character, the trained female nurse and the Sister of Charity appearing in camp as a necessary part of the hospital personnel; and the presence of modern apparatus for the medical and surgical treatment of disease gave an appearance of stability to these institutions that seemed foreign to their original purpose.

As a rule, the hospitals were well administered, and some were models of neatness; supplies of all kinds were abundant, and the sick apparently received every attention and comfort it was possible to give them in camp.

I, however, recommended to the Surgeon-General that the large field hospitals be emptied as rapidly as possible by transfer to general hospitals in the North, until their bed capacity should be reduced to its original number.

In nearly all of the camps the discretionary authority given to chief surgeons to vary from the original scheme of organization for the field had been exercised, and many regiments were already equipped with their own hospitals, varying in capacity from ten to sixty beds.

Every regiment in these camps was visited by me and its surgeon carefully instructed in the views of the Surgeon-General regarding the function of the hospital to be established; the necessity of preparation for a movement of the regiment was emphasized, and particular caution given against the retention of any cases that might under such circumstances prove an embarrassment because of their serious nature.

Instructions had already been given for the construction of wooden pavilion hospitals at the sites selected for winter quarters of the troops, and my inspection closed with a feeling of satisfaction that the sick of the troops now in the field would be properly cared for during their stay within the limits of the States.

DOCUMENTS ATTACHED TO COLONEL GREENLEAF'S REPORTS.

1. *Memoranda of sanitary precautions adopted at a conference in Tampa Bay Hotel, June 12, 1898, by Colonel Greenleaf, Dr. Guiteras, Major O'Reilly, Major Pope, and Major Daly.*

For the troops in the United States.—On the appearance of yellow fever at Mobile, Ala., all troops at Tampa and other points in Florida to be moved to Fernandina and Miami, Fla. The establishment of sanitary inspectors on all railways leading into the State from the West and on all roads communicating with the camps from the West and North. All persons coming from the West for service in Florida to be sent to McPherson Barracks, Ga., for detention during ten days. Extra precautions to be taken regarding the policing of the camps, and a house-to-house visitation in the town of Tampa.

For the troops in Cuba.—Extra precautions regarding diet and personal cleanliness of soldiers. All water to be boiled before used. All intercourse with natives to be prohibited. Immediately after the landing of troops, all buildings that have been used by the inhabitants to be destroyed by fire, as well as all clothing of refugees. A camp of detention to be formed for prisoners of war and refugees, to be guarded by immunes, if they are to be found; if not, by a guard that shall be permanent for at least five days, after which, if no yellow fever appears, they may be changed. Should yellow fever make its appearance, the camps of the command should be moved to new sites, the brush and undergrowth being first destroyed by fire. Suspected cases to be isolated in temporary camps of detention. For convalescents from yellow fever, the clothing to be destroyed by fire and new clothing issued.

2. *Extract from letter of Colonel Greenleaf to the Adjutant-General, headquarters of the Army, dated July 7, 1898.*

Finally, and by far the most serious, is typhoid fever, of which in each camp there is a number of cases, which, in spite of preventive precautions, is steadily on the increase. As this is a water-borne disease the greatest care has been exercised in the selection of the sources of water supply, and of the examination of the water by every means known to science, the result showing that the regular water supply at the several camps is as yet free from any dangerous element;

and there is a consensus of opinion among the medical officers that the germs of this disease are obtained from infected water sources outside the camp limits, such as wells in the neighboring farms and infected water in adjoining towns, which are constantly visited by the troops. How long the camp sources can be kept free from infection is hard to say. Among the sanitary precautions taken are the recommendation of boiled water as a constant beverage for the soldiers, the perfection of drainage systems, and the disposal of the excreta, either by burying in pits or by cremation. If the former precaution should be carried out we might feel assured that further cases of typhoid fever would not occur, but as a practical fact it is as yet impossible to secure compliance with this order by the soldiers. The number of diseases attributable to malaria is comparatively small.

Considering the fact that troops are living under conditions entirely new to them, including insufficient tentage and clothing, indifferent cooking of food, and unaccustomed exercises, I think the general sanitary condition is good, but this should not be taken as an index of continued improvement. On the contrary, it is my opinion, in spite of the sanitary precautions, the percentage of sick will increase until the discipline of the volunteer troops has so far improved that we may be assured of compliance with the orders that are given for the preservation of their health.

Regarding the health of the troops now operating in Cuba, I feel that there is reason for grave apprehension. Added to the conditions I have mentioned above as existing in camps of instruction, there are in Cuba climatic and other conditions infinitely more harmful and difficult of control; the long-continued and excessive daily heat of the climate, with rapid lowering of temperature at night; the necessary exposure to rain in the absence of tentage; the scarcity and poor cookery of food; the effect of prolonged physical exertion on the battlefield, inducing nervous exhaustion, are all factors which must be seriously considered in forming an estimate of the health of the troops if their continued residence in Cuba is contemplated. To this should be added the almost certain appearance of yellow fever. While the medical officers are fully alive to the gravity of this situation, and have prepared with the utmost care the sanitary measures which are necessary to prevent disease, and have ample medical supplies to control it should it appear, it must be borne in mind that the military situation renders the carrying out of most of these precautions an impossibility. Without proper tentage and clothing the ill effects of temperature and moisture can not be prevented; without the necessary means of cookery proper food can not be supplied. Under existing circumstances the sterilizing of water supply for the entire command by boiling may be said to be an impossibility, and should yellow fever make its appearance it will be almost equally impossible to thoroughly prevent its spread.

3. Lieutenant-Colonel Senn's report, dated August 10, 1898.

I have the honor to report to you the results of my investigations concerning the origin of typhoid fever among our troops in the city of Ponce and its vicinity, as requested in your order of recent date. There are at present about 250 cases of typhoid fever in the army of invasion at this point. A careful study of 200 cases of which I have reliable information shows that the disease in every instance was contracted before leaving the United States. By far the largest number were contracted in Camp George H. Thomas, Chickamauga, Ga. The Second and Third Wisconsin Volunteers furnish the largest contingent, followed by the Sixteenth Pennsylvania and Second Massachusetts. Camp Alger comes next; the fewest cases from Tampa. Typhoid fever is indigenous in Ponce to some extent throughout the entire year, and from the large number of infected cases extra precautions will become necessary to prevent further spread of the disease among our troops. In view of the great prevalence of the disease in Camp George H. Thomas it appears to me that the Medical Department of the Army should recommend immediate evacuation of the camp.

4. Major Woodbury's report, dated August 6, 1898.

Upon receipt of Special Orders, No. 3, I immediately inspected the caserne, the jail, and the Spanish hospital, and the camping ground of the troops. Finding the city to be without any health organization, I summoned all the medical practitioners to meet me and organize a board of health. They chose for their representative Dr. Moret, who graduated at Bellevue Hospital Medical College in 1880, who, with the mayor of the city and the syndic ex officio, now compose the board of health of Ponce. The regulations issued to the inspectors of the board, who are four in number (one for each ward in the city), are as inclosed. The imme-

ciate questions pressed upon the board, with whom I meet three times per week, are: First, street cleaning. This has been begun, and in some districts is being carried on quite well, and will be pushed. Second, the public water supply. This is derived from the Rio Portegese. The intake of the aqueduct is at a pond formed by a dam about 6 feet high across the river. This pond has been almost filled with silt and the deposit caused by the wash of the heavy rains. It will be cleared out and another heavy galvanized iron strainer placed over the intake. As soon as possible a filter will be placed at the city end. The valley of the Rio Portegese, which I have carefully inspected, is clean, and only occupied by infrequent coffee estancias, the drainage from which is not considerable.

The disposition of the public dead must be immediately changed. The present method is to inter them five tiers deep, and in five years to dig over the same ground and begin again. I have begun arrangements for a new public cemetery outside of the city proper, all interments being heretofore intramural. As soon as the purchase of land is completed and the ground consecrated the new cemetery will be in use.

I have thoroughly disinfected and in part repaired the city prison. I am clearing the drain of the Spanish military hospital, which, with fumigation and cleaning, will render it suitable for immediate occupancy, as it is but one year old. I have fumigated and cleaned the caserne and rebuilt and cleaned the sinks therein, rendering it fit for use. All captured woolen uniforms and clothing have been immediately burned. Several bales of cotton clothing that were new have been boiled for an hour and might be used.

The troops are quartered in buildings, save the prison guard on the roof of the jail; one company of the Third Wisconsin in the caserne, as guard over the large quantity of ordnance stores therein, and two companies of the Sixth Illinois, which are acting as provost guard at Playa. The latter are partially sheltered by the sheds of a lumber yard.

I have inspected the sheds which the Government has used at the Playa as storehouses, and find them, after their policing, clean and proper for use.

The camps of our troops are so situated as to render them dry and well drained in the showers, and I can only beg strict regimental orders against the men filling canteens in the streams where the inhabitants are washing their clothes.

We have here at present 10 cases of smallpox and a few cases of measles. There is no yellow fever and no report of a case for three years. No typhus and but few cases of typhoid among the inhabitants. As soon as the proper virus can be obtained from New York, I shall begin compulsory vaccination of the inhabitants. On August 3, in accordance with your orders, I went to Arroyo, 45 miles east along the coast, obtaining transportation in New York Sun dispatch boat *Kanapaha*. Upon landing, I found a small Spanish town in the form of the letter T, with head toward the beach. It was fairly clean and well policed. The local medical authorities report no yellow fever and no smallpox in town; some cases of the latter in the surrounding country.

General Brooke is quartered in the second story of a building on the beach, General Hains in the custom-house, the staff in a large house in the village, and the troops in tents about a mile back from the beach. No buildings are used as storehouses. All officers will go into camp as soon as the tentage can be brought ashore.

REPORT OF LIEUT. COL. A. C. GIRARD, UNITED STATES VOLUNTEERS, CHIEF
SURGEON SECOND ARMY CORPS.

[Dated October 21, 1898.]

I was ordered to report to Maj. Gen. William M. Graham, commanding Second Army Corps, on the 19th of May, 1898, at Camp Alger, Va. I received the order on the 20th, and proceeded the same day to Camp Alger—a point 7 miles from Washington, D. C.—in the State of Virginia, the nearest site of the camp being 2½ miles from the railroad, and extending eventually 2 miles farther toward the Potomac.

On reaching the camp I found that the corps commander had not yet arrived, and reported to Major-General Guenther, commander of the First Division. He, however, had no knowledge of the corps organization. I remained in camp the only officer of the general staff, and the next morning, on the arrival of the adjutant-general of the First Division, I ascertained that a number of regiments were in camp; that they were coming in with every train, generally without previous announcement, and camped where they saw fit.

I inquired about the water supply, and was informed that there were supposed to be a number of fine springs on the place, which was a water shed for the city of Alexandria. I succeeded in obtaining the services of Lieutenant Ames, of the Sixth Massachusetts, as engineer, and, accompanied by the proprietor of the place. I started out to locate these springs, the engineer noting them on a map. I found the tract of land which was supposed to be occupied by the troops to be composed of woods, with open places of from 20 to 100 acres each. The country was uninhabited, with the exception of two homesteads, and only a few fields were cultivated. A large number of springs could be found all over the grounds. Their capacity, however, was small and evidently insufficient for a large command for any length of time. In addition to these springs there were two wells at the homesteads, which were said to give an abundance of water. I at once repaired to division headquarters and recommended that these springs be placed under guard to prevent the defiling of the ground in the vicinity, and that an engineer officer be supplied with a sufficient force to excavate these springs into sink-barrels, in order to utilize them to the best advantage. The quantity of water soon proved insufficient for the increasing number of the troops, and great complaints were made of its scarcity. I was in great doubt as to what my duty was in the premises.

The camp had been selected by the War Department, which must have been fully apprised of its facilities for water supply; and considerations of which I could have no knowledge were, in my opinion, the reasons for the selection of this ground. I therefore deemed it my duty not to impede the Government by entering a formal protest, but to make the best of the situation, hoping that the stay of the troops would be but temporary, and that meanwhile the water supply might prove sufficient. In order to increase the quantity of water available, I recommended that details be ordered to gather the water at the springs during the night, and, as very soon the question of purity became a burning one, I recommended the water to be boiled by the detail and supplied the troops in barrels at the company streets. An order to that effect was issued by the commanding general, but very imperfectly carried out—partly for the lack of barrels, partly for the lack of utensils for boiling the water, and partly from indifference.

I had at the same time made recommendations for the proper care of the privies and their disinfection, which were ordered carried out; but the orders were obeyed in a very indifferent manner, the regimental surgeons proving particularly indifferent to the care of the privies.

I found the cooking done in a very careless and unskillful manner and recommended simple cooking regulations, which were ordered, but never enforced.

While attempting to have the sanitary condition of the camp regulated I was forced into making provisions for the care of the sick of the command. I had understood that you had requested the governors of the several States to provide the regiments with their equipments at the expense of the General Government, but found that this request had either not been complied with at all, or, by the lack of judgment of the medical officers as to the quantity needed by these large commands, had been so inefficiently complied with that there was a great lack of medical supplies, some regiments having a large number of sick without tentage or medicines to take care of them, and I was compelled to establish at once a division hospital, the supplies for which I obtained by calling in all the medical supplies of the command on an order from the commanding general. This gave me time to obtain the most necessary medicines before the first supply was exhausted, and I obtained everything needful. Naturally I incurred the ill will of those regimental surgeons who had come well supplied with the regimental hospitals and who could not realize the situation. The supply of medicines, however, of all was very limited, but the wants could be met by frequent issues in small quantities.

Not knowing the intentions of the Government with regard to the command, I used the most strenuous exertions to equip the hospitals for the field, and succeeded in providing three brigades with a complete outfit, which were detached for service in Cuba or Porto Rico. I had to do this again by depriving some of the well-equipped regiments which were to remain in camp of their equipment, which, however, had to be replaced as soon as possible. The medical and surgical chests and orderly pouches, which required special preparation, were very slow forthcoming, as the troops which were first destined for Cuba had to be supplied first, as I was informed.

I had no intimation until late in the summer that Alger was to be a camp of instruction, and that the troops were not destined to take the field immediately. The camps of the regiments at first were badly laid out, the tents crowded, the

privies too close to the camps, but gradually the matter was remedied, and when-ever I found that the health of a regiment was deteriorating I caused the regiment to be removed to a new site.

As early as the 3d of June I recommended individual covering of fecal matter in the privies. This was generally disregarded until the commencement of August, when, on my recommendation, an order was issued enforcing this necessary sanitary measure, and since that time, by close watching, it has been the rule of this camp.

Shortly after the fact had become plain that the water supply from the springs would not be sufficient for this command drive wells were commenced and the work continued day and night until every regiment was furnished with a pump. These wells were, on an average, 120 feet deep, and driven through clay until they reached shale rock, in which the water supply lay, and then driven still further into the solid rock. In this manner no subsoil water could reach the water supply. The water from these wells was analyzed in your laboratory and found pure excepting two instances, which revealed organic matter. These wells, although completed, were at once condemned.

About the middle of July the Second Division of the corps was suddenly ordered one night to start on the march to Thoroughfare Gap, Va., at 7 o'clock the next morning, leaving their tents standing and taking only shelter tents. Very hasty and imperfect provisions were made for the supply of the troops with food, causing much complaint and no doubt sickness. This command was unfortunate in encountering very severe rain storms on its march, and ordinary sanitary precautions were then ignored, as I was informed. I was not with that command.

The First Division was moved from its camp site to one where there was more space at Dunn Loring as fast as wells could be driven. On the 14th day of August it was decided to move this command to Middletown, Pa., to which place I accompanied the commanding general in a train preceding the troops. I drove with him over the Young's farms, which had been selected by the commission from the War Department, of which Deputy Surg. Gen. Charles Smart was a member, and found that the most level camp sites were in the valley of the Susquehanna, too close to the river, and I recommended that no locations be chosen below the second bench, which necessitated the camp to be spread out over a number of miles, on account of the broken condition of the grounds.

The water supply here also was precarious, the Quartermaster Department having had a well driven which gave about 50,000 gallons in twenty-four hours. The plan was to pump this water into tanks, and thence to distribute it by pipes over the camps. The troops arrived, however, before this water supply could be completed. Fortunately a pure limestone spring was found within convenient distance, and the water supply of the town of Middletown was available. All three sources of water supply were chemically examined in a laboratory, which I had established in one of the division hospitals in this camp, and found pure. For several weeks the water had to be hauled in barrels to the different camps, and every possible precaution was recommended by me to insure its delivery in a pure condition. In order to guard against any possible contamination affecting the health of the troops I caused a set of Maignen and Berkefeld filters to be issued to each company with orders to detail a special man for the care of the filters and one of the junior medical officers in each regiment to superintend the work. This duty was omitted or carelessly performed, like most of the sanitary duties of the volunteer officers. Some regiments did not even unpack the filters; others used only the Maignen. Still, a gradual improvement in the care of the filters took place by the appointment, on my recommendation, of an inspector. My object was not so much to purify the water, as the supply was pure, but to educate the troops in the use of the filters and to insure a sufficient supply of them for each command as experience would teach me to find necessary.

Every possible sanitary precaution was recommended by me to improve the health of the command, which had severely suffered from typhoid fever, of which I will speak hereafter. Orders were not only issued but carried out, and compliance was watched by the commanding general, corps, division, and brigade inspectors, sanitary inspectors, and by myself.

The composition of the command entirely changed after the troops reached Camp Meade, some regiments of the corps not even arriving at this camp, but being sent to their States from Camp Alger to be mustered out. In their place came 12 regiments from various parts of the country, most of which had been in regimental camps and were ignorant of the sanitary regulations carried out in this command, and had generally ignored sanitary rules and thereby added to the number of sick in the command. It is impossible in this résumé to refer to each

particular sanitary recommendation, but a copy of every one has been appended to his report with a carefully prepared index, so that the sanitary history of this command can be better followed up by reading these letters than by mere description. [These letters and recommendations are too voluminous to be printed in this place.]

Every sanitary recommendation made by me was made the subject of an order by the commanding general, and in order to insure prompt action and no delay from pressure of other administrative business, I supplied, in nearly every instance, the Adjutant-General's Office with the necessary copies in the form of an order, until we came to this camp.

The health of the command.—Soon after the arrival of the troops at Camp Alger cases of typhoid fever developed. At first they could be ascribed to well-defined outside infection. They were at once removed to Fort Myer, which was about 10 miles distant, first by ambulances, later on the trolley line, on which two hospital cars had been equipped. After these original cases, which had clearly received their infection before their arrival in camp, others occurred more and more frequently after a perfectly pure water supply had been provided for the camp. The number of those actually taken sick with typhoid fever could never be accurately ascertained. As soon as a man showed indications of typhoid fever in division hospital he was removed to Fort Myer before an accurate diagnosis could be made. Many men who felt ill obtained furloughs and proceeded to their homes, where they were taken with the fever. It was evident, however, that the number was steadily increasing, and that it was absolutely impossible to hedge in the cause of the infection. By the careless and filthy habits of the men the woods surrounding the camps became generally the receptacle of fecal matter. Sentinels who were placed to prevent this use of the surroundings of the camp failed to report their comrades, and I do not believe that in a single instance an arrest took place for this cause, which was one of the principal ones of the infection of the camp.

In spite of the fairly sufficient water supply of the pumps, the men, in violation of orders, would go to the so-called springs and quench their thirst. The heavy rains had washed the fecal matter into these water courses, and thus infected them. There were hundreds of these springs in all sorts of hidden places in the woods, and it was a physical impossibility to place them under guard. There is no doubt that the indifference of the officers in looking after this matter is largely responsible for the great amount of typhoid fever.

As another source of the disease, I would indicate the probability that the wells in the farm houses surrounding the grounds were more or less infected. I was credibly informed that every fall a number of typhoid cases, particularly in Washington, occur among people who had made these farm houses their summer resorts. The same applies to the water supply of the wells of Dunn Loring and East Falls Church, where several companies were stationed to control the undisciplined mob of volunteers which composed the command.

Another source which could be but imperfectly controlled was the reception by many soldiers of boxes of all sorts of food from home, which either caused indigestion and thereby liability to disease, or actual infection. Another source were the vendors of ice cream, sandwiches, pies, cakes, and every possible indigestible food, which the soldiers purchased principally because it was prohibited. Orders issued to suppress this trade on my recommendation could not be carried out, because the vendors established their stands on land 60 feet each side of the public roads, which the proprietor had reserved for himself. The only possible measure was to station sentinels at each booth to prevent the men trading there, but these sentinels were no more efficient than those who were supposed to watch the surroundings of the camp from contamination by fecal matter.

After I had sent about 200 cases of supposed typhoid to Fort Myer, it was found that preparations for the reception of this class of sick had not progressed rapidly enough, and orders were issued to me by your office to discontinue sending typhoid cases to Fort Myer for one week. This was at a time when the disease had become general, and I received your authority to take care of the typhoid cases in camp, as their transportation to Fort Myer after a certain stage of the disease was detrimental to their recovery. By this time I had accumulated a sufficient amount of tentage and appliances to care for all the sick of the command, which did not exceed 600 at the worst stage. On its arriving in the vicinity of Manassas, the Second Division found itself encumbered with a small number of incipient typhoid cases, and on being asked for instructions I telegraphed to establish a field hospital at the most convenient place, and Bristow was selected by the commanding general. The command from Bristow proceeded to Thoroughfare Gap, and the typhoid cases from that place were sent back to Bristow. On the arrival of the command at this place it appeared for a time that the infection had been shaken off by the command, but very soon the hospitals became filled again, especially when the Fifteenth Minnesota, the Thirty-fifth Michigan, and the Two hundred

and third New York arrived. The Fifteenth Minnesota had left one-third of their command sick in the hospitals of St. Paul and Minneapolis. The Thirty-fifth Michigan came from an infected camp, and the Two hundred and third New York had had several hundred cases before coming here. Every possible precaution, that will be seen from the appended recommendations, was taken by me within the means at my command to prevent the spread of the infection. I failed to secure one very important agent by the refusal of the Quartermaster Department to supply a portable engine and steam disinfecting apparatus, which I believe would have been of inestimable value.

As soon as I found that the hospitals were filled to their utmost capacity, I accepted, with the consent of the commanding general, the hospitality offered by the city hospitals of Philadelphia, Harrisburg, Reading, Lancaster, Norristown, West Chester, Pottsville, Pottstown, Lebanon, York, and Columbia, partly to relieve the engorged condition of the hospitals, partly to remove the infection from the camp to places where it could be handled better than it could be with the crude appliances of the field. At that time, I also was offered by you the use of the field hospital of the Associate Society of the Red Cross of Philadelphia, which I made part of the Second Division hospital, for the reception of such typhoid cases as became too sick for transportation by rail and the seriousness of their condition was realized. The Red Cross Society furnished female nursing and the care received by the patients from ~~these~~ skilled attendants was far superior to any which could be given in any of the field hospitals by the untrained men of the Hospital Corps.

As a résumé, I desire to state that the appearance of typhoid fever in this command was a natural result of the gathering together in crowded camps of untrained soldiers with ignorant officers, and that a careful review of the past convinces me that no feasible measure to prevent the spread of the disease was left untried, and that every recommendation possible under the circumstances was made by me.

Division hospitals.—As mentioned above, I was compelled by the force of circumstances, in order to provide for the sick of those regiments which had come without any medical equipment, to establish division hospitals. They were crude affairs at first. The men who assisted me were details from a few regiments, whose colonels or medical officers were publicspirited enough to assist me in my efforts to have the sick cared for. I had to rely on details made from the regimental medical officers, and found them, as a rule, fault-finding, disinclined to incommode themselves for the welfare of the sick, and unable to adapt themselves to the peculiar circumstances, besides being hostile to a measure which appeared to be an infringement upon what in their militia notions they regarded their rights. They have not learned yet to consider themselves part of an army, and each regiment and each State was for itself.

As I found it impossible to obtain a hospital corps for the camp, I had to resort to the transfers from the regiments and met with innumerable obstacles. The medical officers did not inform the men of the terms of the transfer; if transfers were insisted on they palmed off on the medical department the most undesirable element in the companies, men whom the captains wanted to get rid of, although they certified on the transfer papers to the efficiency of these men. The result was that the medical service in the hospitals was very unsatisfactory.

In the early days of our service at Camp Alger I made no effort to provide for the hospital commodities which were enumerated on the supply tables, as I was then under the impression that we were preparing for actual war and that it would not be to the best interests of the sick for them to become accustomed to conveniences which could not be carried into the field. For this reason I made no effort to provide the beds with sheets and pillowcases, as they were articles which could not be carried into the field, and after being carried they would only become an incumbrance, for the lack of facilities for washing.

As soon as I learned that Camp Alger was to be only a camp for instruction, I obtained a large number of articles desirable for the care of the sick which usually do not belong to the equipment of a field hospital. At no time was the medical service satisfactory until I received your consent for the employment of contract surgeons, who, as a rule, were not appointed like the volunteer surgeons as a reward of political preferment; but, knowing that their stay in the service depended on their usefulness and zeal, they devoted their best efforts to the welfare of the sick.

I had a fund intrusted to my care by you to meet extraordinary demands, and this enabled the hospitals to provide the sick from the very start with the necessary food, independent of that furnished by the ration. Owing to the lack of ability of managing the allowance made by the Government on the part of the surgeons and the wastefulness of the cooks, the expenses which for milk and eggs alone I had to meet in one of the division hospitals amounted to over \$900 in one

month. The ice was paid for through the generosity of the National Relief Commission, and was unlimited.

At the very outset of the camp I had established a supply depot for the corps, and in this manner succeeded in having on hand a stock of medicines from which division hospitals were supplied; and at no time was there an absolute insufficiency, although at times there was a scarcity. I can attribute this only to wanton waste, which I could not locate, but which I tried to prevent wherever possible by stringent regulations.

The first hospital established on the grounds was the First Division hospital. I was compelled to place it in an undesirable location, as I desired to have it in the vicinity of the only available well and within reasonable distance of the troops which it was to supply with shelter for the sick. I had it soon placed on a more desirable ground, but at no time was the hospital under sufficiently competent charge to effect what I thought it ought to accomplish. The main reason for this was the apathy of the officers in charge and the indifference of the men composing the hospital corps.

When the Second Division was organized I was fortunate enough to secure the services of Maj. F. C. Stunkard, surgeon of the One hundred and fifty-ninth Indiana, who had assisted me in establishing the First Division hospital, and had thereby acquired some knowledge of matters of administration. I placed him in charge of the Second Division hospital, and by his personal magnetism he succeeded in bringing about a friendly feeling among the colonels and the medical officers of a number of regiments, thereby enabling me to secure the transfer of a more desirable class of men; and the hospital, even after Major Stunkard returned to his regiment, retained its higher grade of efficiency.

On being notified that the Second Division was to make its march to Thoroughfare Gap, I prepared a complete brigade hospital and had it sent with that division, expecting to supply any deficiencies, as they were to remain on the line of the railroad.

As mentioned above, I had to establish the hospital at Bristow, and in order not to deplete the brigade hospital of the Second Division I sent the supplies for that hospital by ambulances across country, not willing to trust to the delays of the railroad, and in that manner completely equipped it. Having received information that the Second Division continued its march from Thoroughfare Gap to Middletown, Pa., I transferred all the sick and the necessary tentage and supplies from the Second Division hospital, which had remained standing in camp, with 300 sick, to the First Division hospital, and completed, as far as I could, another brigade hospital, which, with the brigade hospital that accompanied the Second Division, could supply these troops with sufficient facilities for the care of the sick. These orders were changed, however, and the whole move was to be made by rail. I therefore telegraphed to have 50 additional tents meet us at Middletown, and with the equipment of the Second Division hospital sent the hospital force of that hospital on the second train to Middletown, and as soon as a suitable place could be secured established a hospital in advance of the arrival of any of the troops. I then caused the corps reserve ambulance company, of whom about 100 had accompanied headquarters, to establish a hospital in readiness for the First Division. The organization of the First Division hospital on the departure of the troops from Dunn Loring was left standing under the charge of the best officers I could find, and after disposing of the sick, was with the personnel moved to this camp.

The Hospital Corps.—The difficulty of obtaining a sufficient number of men from the regiments to give 2 per cent of the force allowed for the Hospital Corps and the impediments thrown in my way were so great that the commanding general determined to stop all transfers and to send out a recruiting party to fill up the Hospital Corps. I was fortunate in gaining the good will of the colonel of one of the Ohio regiments, who, not understanding the system of the division hospitals at first, had been very hostile to any transfers or the detail of his officers in the division hospitals. He not only offered me a full quota of the hospital detail of his regiment, but also sent an officer with a party of noncommissioned officers to recruit desirable men in southern Ohio. In this manner in a very short time I not only succeeded in filling the quota of the divisions, but also in organizing a full corps reserve company, and had at least then the men necessary for the service. The inability of medical officers to grasp the company organization and its papers and lack of mental force or training to control the men led finally to my requesting authority to place one of the officers of the line, who are allowed as quartermasters in the division hospitals, in command of the Hospital Corps companies, and gradually matters became systematized. The reserve company was of the greatest use to me, since from it I supplied 25 nurses to the general hospital at Fort Myer, 75 to the hospital at Bristow, and still had enough left to organize the second section of the First Division hospital at this place. As soon

as I obtained its personnel I started regular mounted drills, litter exercises, and general instructions in first aid and nursing, and hoped in this manner to supply the divisions with well-trained men and call in those that needed instruction. The move to Camp Meade, however, frustrated this design. When the order for muster out came, more than one-half of the Hospital Corps left with their regiments, under an agreement which I had to make in order to get any men at all, that should any of their regiments be mustered out they would return home with them. Fortunately here again the reserve corps stepped in, and by dividing it between the two hospitals I succeeded in retaining a sufficient number of men who by that time had become very well trained to perform the service in the hospitals with the aid of detailed men from the regiments under General Order No. 126. I then applied for the detail of an officer of the Fifteenth Minnesota to recruit the hospital corps in Minneapolis, and am now getting recruits and hope to fill the corps to its full quota before starting for the South.

On arrival in Augusta, I propose to reorganize the reserve company and, if circumstances permit, turn it into a training school, from which to replenish losses in the division hospitals or transfer men thence to the school.

I desire to add the following conclusions and recommendations as further results of my experience in the performance of my duties as chief surgeon of the Second Army Corps:

First. Regimental medical officers and hospital stewards: I believe that this method of supplying volunteer troops with medical attendants should be done away with, as it has been abandoned for many years in the Regular Army. Instead of the medical officers being selected for their superior aptitude, they have been relics of the National Guard service, in which, as it is known, these offices are filled with men, by the colonels, regardless of professional standing, generally for personal reasons of political preferment. The medical officers in this manner are too much dependent on their colonels, who, instead of looking upon them as medical advisers, consider them only ornamental additions to their staff. This cripples the independence which a medical officer ought to have of his commanding officer, and makes him useless as a sanitary adviser with an ignorant or opinionated colonel. I have also found that the medical officers were so wedded to their regiments that any duty outside of the regiments, either of a sanitary nature or in division hospitals, was resented by them as an imposition.

The hospital stewards of the regiments were fully equal to the medical officers in their regimental adhesions, and proved, as a rule, useless in division hospitals. In the regiments many of them did the real professional work, as they were physicians, while the administrative work in hospitals was new to them, and they worked at a disadvantage. I would recommend that regimental surgeons therefore be abolished, and that some measures be taken to obtain a reliable medical corps for the volunteer service, even at a sudden call like the one of the war with Spain.

Second. Much of the enmity displayed against the division-hospital system was due to the belief of the regimental medical officers that I was introducing notions of my own into the administration of the medical service. It seems very desirable that a carefully prepared code of regulations be worked out and printed for the field-hospital service in the style of those of foreign armies, thus not only bringing about uniformity in methods, but a possibility for the medical officers of inferior rank to become acquainted, by study, with the administration of the Medical Department.

Third. It was very fortunate that I was authorized to increase the small number of acting hospital stewards allowed in the organizing order, and recommended that such an increase be made permanent, on the same basis as noncommissioned officers are appointed for the troops of the line. I found that since I received this authority, and the men knew that they had something to gain by good behavior, and the stewards something to lose by incompetency, I obtained much better service than ever before.

Fourth. One of the principal sources of infection in the command is the fecal matter, and a permanent system for the disposal of this question in the field appears very desirable, and the equipment necessary for the purpose should form part of the regimental baggage. It should therefore be of imperishable material, easily kept clean and easily transported, and I believe that the best method is to provide each company with two cast-iron troughs, on cast-iron wheels, the front axle on a pivot. These troughs should be about 10 feet long and have a circular opening with a cast-iron cover, opening downward, 1 foot in diameter at the bottom. They should have two movable lids, one supplied with four holes, the other as a cover to prevent unsightly appearance in the removal of the trough.

Fifth. The question of water supply for the troops in camp and on the march should also receive serious and permanent consideration. I believe that one or more water carts should form part of every regimental equipment, to carry

the water to the camps where hydrants are not available, and to make a suitable water supply accessible to the men on the march. I believe that this necessary article of diet should be issued to the troops with the same care as the components of the ration. In this manner only can the proper sanitary supervision be carried out. If necessary, a system of filtration could be connected with these carts.

Sixth. As a considerable part of the army will hereafter be stationed in sub-tropical countries where pure water supply can not always be obtained, a nest of boilers in a box, supplied with hinge lids and hasps, should form part of the equipment of every company, to render the boiling of water possible. As the nest of boilers can be utilized for the carriage of sugar and coffee and similar components of the ration, it is believed that it will not be left behind like other more complicated apparatus, and will always be carried with the cooking outfit; consequently remain with the troops.

Seventh. Contract surgeons: The position of the contract surgeons is an anomalous one. They are civilians performing the duty of officers, and have the rights of neither, if it suits the commanding general to deny them. The method of employing this useful class of officers in the Navy seems to offer a remedy, as there they obtain the warrant from the Secretary and form part of the establishment. They would in this manner also be more secure against arbitrary dismissal, and, as in the Medical Department of the Navy, a list of qualified men examined by the medical board could be appropriately kept on file in the Department, from which, in case of necessity, the proper men could be recommended to the Secretary of War for warrant. They would in this manner become eligible to the military orders which perpetuate the associations of the wars, and no doubt would add to the inducement for a suitable class of men to present themselves for admission to the rolls.

Eighth. Division and brigade surgeons: The division surgeons of this corps are men of high professional standing and status in the National Guard service, but absolutely ignorant of administrative work in the Army. I therefore recommend that only trained medical officers be in the future made eligible for the high offices in the Medical Department, and in this manner the War Department will be relieved of the political pressure which brought about the selection of men who were not suited for these positions.

The brigade surgeons should likewise be trained medical officers, as their duties, as a rule, call them to duty in division hospitals. Their name, brigade surgeon, appears to be a misnomer, and has caused in this corps frequent attempts on the part of brigade commanders to have these officers attached to their staff, where they occupied more ornamental than useful positions.

I believe that the system of the war of the rebellion of appointing surgeons and assistant surgeons, United States Volunteers, throughout the service would meet the requirements of the Volunteer Army better than that which now provides for officers performing duty under the misnomer of brigade surgeons.

For duty in the colonies which have passed into the possession of the United States, medical officers of the Regular Army should receive at least one grade increased rank, in order to enable them to better meet the expenses of keeping two households, and to make them equal in rank to brigade surgeons or whatever the title may be of the superior medical officer, with the proviso that where officers of equal rank serve together the medical officers of the Regular Army, irrespective of the date of appointment, shall be considered the seniors.

I trust that in considering this report you will bear in mind that my duties with this corps were entirely of an administrative character, and as I had to follow up and supervise duties which usually are performed as a matter of course by medical officers of inferior rank, I was less able than I would have been under other circumstances to closely observe the etiology of epidemics or to make observations of a clinical or purely professional character.

REPORT OF LIEUT. COL. CHARLES SMART, DEPUTY SURGEON-GENERAL, UNITED STATES ARMY, ON SANITARY CONDITIONS AT CAMP ALGER, VA.

[Dated July 13, 1898.]

I have the honor to report that, in accordance with paragraph 33, Special Order 157, Adjutant-General's Office, Washington, July 6, 1898, I proceeded, on July 8, to Camp Alger, Va., and inspected the camps of the First Division, and on the 11th the camps of the Second Division, Second Army Corps, having meanwhile investigated the condition and clinical histories of the cases of typhoid fever that had been removed from these camps to the general hospital at Fort Myer, Va.

I found two troops of New York cavalry encamped in conical wall tents on the slope on which the headquarters of the corps are established. These had ample

camping ground, which was well drained, but had no shade. Their water supply was derived from the same source as that of the headquarters.

The striking characteristics of the camps of the First Division were overcrowding of tents on the camp site, overcrowding of men in the tents, dust, sun glare, and fetid odors. The Eighth, Twelfth, and Thirteenth Pennsylvania were packed closely together, with scarcely an interval between the regiments, the company streets hardly wider than the intervals between adjacent companies should have been, tents of the same companies in contact with each other on the sides and of adjoining companies in contact by the ends. The double row of tents between the narrow company streets thus made a continuous canvas covering with double partitions dividing it up into small sections, under which it was impossible for the 5, 6, or 7 men in each section to get a breath of fresh air. The Eighth Pennsylvania had their common or wedge-wall tents floored with boards, but so close to the ground that there was no air space beneath the flooring. These tents had a ground area of about 56 feet. In addition to wedge tents the Twelfth and Thirteenth Pennsylvania had some conical wall tents, which also were overcrowded. In many there was no flooring, the men lying on the ground, their blankets and clothing matted with dust. The kitchens were close up against the company tents, with uncovered cesspools for kitchen slops and garbage, and the sinks also were so close that, although some care was given to cover the deposits with earth, the sink odor pervaded the company streets. The sinks were too small for the accommodation of the regiments, so that they were in constant use and always contained reeking and uncovered excreta. The streets and the open ground in the neighborhood of the camps were kept clean and free from excremental or garbage contamination. Under such conditions of overcrowding on a dusty site it was impossible for men to keep themselves clean or free from body vermin, if the latter were introduced, while typhoid fever or any other infectious disease might be expected to spread quickly. That serious consequences have not been developed is due to the heat of the weather, which has led the men to seek as much as possible for ventilation.

The walled wedge tents of the First New Jersey were similarly crowded on each other, but only four men occupied each tent. The streets were only about 13 or 14 feet wide. The sinks were manifestly cared for, but were so near that the odor pervaded the camp. The men slept on their dust-matted blankets on the ground, and nothing in the line of spare underclothing in the blanket roll could be kept clean under these conditions. Adjoining tents of the same company in the Seventh Ohio were separated from each other by about 3 feet, insufficient to give a passageway between the guy ropes, and there was no passageway between the tents of adjoining companies, these being pitched end to end in contact. The streets in this command were wider than those heretofore mentioned, and the men were building low bunks about 8 or 10 inches from the ground to keep themselves out of the dust. All these camps were on open ground, originally grass-covered, but now trampled under foot into a garish and dusty surface. A slight incline gave good surface drainage to the westward. No brush awnings or fences had been erected, and the sinks in most instances were protected merely by a strip of canvas. Practically the only sign of the existence of available wood and brushwood in the neighborhood of the camps was the building of the low bunks in the last-mentioned command. The Sixty-fifth New York had more space. It was camped in a grove of young trees, which, while giving little shade, lessened the garishness by their greenery. Its conical wall tents were separated from each other and well trenched, but no bunks had been built; its sinks were well kept, and so far out that there was no taint in camp. The camps of the Sixth Illinois, Sixth Massachusetts, and Eighth Ohio, on a rising ground north of the hospital of the First Division, were evacuated on the day before my inspection by the departure of these regiments for the front.

The regimental camps of the Second Division were generally more expanded than those of the First Division. In none was the odor of the sinks perceptible in the company areas. The streets and surroundings were clean in all, with the exception of the Seventh Illinois, where filth was deposited by the side of the pathways to the sinks. The Sixth Pennsylvania was camped in an open space in walled wedge tents 7 by 8 feet, with a height of about 7 feet to the ridge, 18 inches of which was constituted by the wall. Four and 5 men were in each of these. Some had bunks of forked uprights supporting a platform of saplings, but many were lying on the dusty ground. The Second Tennessee was similarly situated, but in conical wall tents. The First Rhode Island, also on open ground, was in small wall tents, 6 men in each, all on bunks raised about 18 inches from the ground, except a few who had bunks of evergreens on a bark-covered floor. Care was evidently exercised here to have the men clean and comfortable. The Twenty-second Kansas had the same kind of tents as the Rhode Island regiment.

but each was made to accommodate 8 men. All lay on the ground; a few with pine twigs under them to keep them from the dust. The One hundred and fifty-ninth Indiana was in walled wedge tents, 4 men in each; some having shelter-tent extensions to lessen crowding. The tents were pitched too closely, and the men lay on the ground, dusty and dirty. The Third Missouri had 5 men in each walled wedge tent, and no flooring nor bunks. The Third New York had its streets narrow, its conical wall-tents set too closely; the men lay on the ground on their dusty blankets. The Fourth Missouri had the advantage of shade by being camped in a wood. The wall tents were well spaced and the streets comparatively wide. All were furnished with raised bunks; and the regiment would have had a model camp had care been given to the policing of the interior of the tents. The Seventh Illinois also was favorably camped in the edge of a wood with every facility at hand to have made a model camp, but the conical wall-tents, instead of being furnished with well raised bunks, were littered with dirty straw.

The chief surgeons of division and the regimental surgeons in each instance accompanied me in my inspection.

The great faults in all the camps were the tendency to crowding the tents on each other, the overcrowding of the individual tents, and the want of care for the comfort, cleanliness, and health of the men in failing to have them build bunks, fences, and awnings, when the materials for these purposes were at hand.

The natural drainage in all the camps was good, but in some lying near the margins of a run the subsoil water is too near the surface for health later in the season when heavy rains fall. A thick stratum of clay underlies a few feet of pervious surface soil, and in some of the camps cesspools for kitchen slops consist of basins in this clay, which retain the liquid contents, fermenting in the heat and infecting the neighborhood with bad odors and flies.

The water supply obtained by the Engineer Department is from a series of about 28 driven wells over 100 feet deep, all furnishing a soft and organically pure water. Prior to the sinking of these tubes water from springs of uncertain quality was used by some regiments, while others used water from the sluggish runs, which is manifestly impure, and would undoubtedly have occasioned disease if used without boiling.

These camps, notwithstanding their many insanitary features, are unusually free from disease. Vaccinia, measles, a few venereal cases from proximity to Washington, and some diarrheas from irregularities in diet, or from chill after perspiration, and the difficulty of attending to personal comfort in the crowded tents, constitute the sick list. In addition to these, I found that since the camp was established, in May, 39 cases of typhoid fever have been reported and sent to hospital for treatment. Of these 39 cases, 4 have died—2 from the incidence of the fever and 2 from intercurrent pneumonia. Although not verified in any of these cases by post mortem observation, there is no doubt of the diagnosis, for the clinical features were well marked, and Widal's test has given positive reactions. Abdominal, not cerebral, symptoms have characterized the cases. Four occurred during the month of May, 23 in June, and 12 up to the date of my inspection in July. Taking the month of June as the second month of the aggregation of troops after the call of the President, and rating the strength at Camp Alger during that month at 20,000, the fever rate for the month would be 1.15 cases per thousand men. When we compare this with the July and August record of typhoid among the troops gathered around Washington in 1861, 2.2 in the one month and 6.14 per thousand in the other, we have reason to feel satisfied that the efforts to reduce the typhoid fever rate at the present time has been so successful. The 39 cases were distributed as follows:

Command.	May.	June.	July.
6th Pennsylvania.....	1	1	.....
8th Pennsylvania.....	.....	2	.....
12th Pennsylvania.....	.....	1	3
13th Pennsylvania.....	.....	1	1
65th New York.....	1	.....	.....
150th Indiana.....	.....	2	1
3d Missouri.....	.....	2	1
4th Missouri.....	.....	.....	1
2d Tennessee.....	.....	1	1
3d New York.....	.....	1	.....
3d Virginia.....	1	1	.....
6th Massachusetts.....	.....	4	3
6th Illinois.....	.....	2	.....
New York cavalry.....	2	5	1
Total.....	4	23	13

The regiments which have not as yet been affected with typhoid fever are the First Rhode Island, Twenty-second Kansas, Seventh Illinois, Seventh Ohio, First New Jersey, and to these must be added the Sixty-fifth New York, for this regiment brought one case of fever with it to Camp Alger, but has had no case since then. It is evident that the crowding on the camp sites, in the tents, and the dusty condition of the men from sleeping on the hard-trampled ground, are not factors in the causation of the typhoid cases that have occurred, for, although the First Rhode Island, which was tolerably free from these insanitary conditions, had no case, the First New Jersey, which had all of these conditions in an aggravated form, also had none. From the manner in which the cases are scattered through the camps, it seems clear that the infection is due to causes which are not general, but which operate on the individual or on two or three closely related individuals in the same command. This excludes all emanations from the camp site or its surroundings, and all matters relating to the subsistence of the troops, including the general water supply. We know now that the great prevalence of typhoid fever in the camps around Washington in 1861 was due to the use of surface water in runs and creeks contaminated with infected excreta from the carelessly policed camps of those days, and the more closely the present cases are investigated the more evident does it appear that the sporadic cases that have occurred are due to the occasional use of surface or farmhouse well waters that have not been sterilized by boiling. Before the deep-well-water general supply was obtained, many of the regiments made use of waters from springs of uncertain quality and from surface streams of certainly bad quality, and that this was not followed by widespread evil consequences is due to the care taken that such waters should be boiled before use. The largest number of cases occurred among the troops of the New York cavalry, the members of which on orderly duty are frequently away from camp, and while on such duty are in the habit of drinking from the most available source of supply, irrespective of quality. I feel confident that with the present general water supply and the prompt removal of sporadic cases to general hospital there need be no fear of any epidemic visitation of typhoid fever in the Second Army Corps. I would suggest, however, that due care be given to the removal of the insanitary conditions which I have pointed out, as these would be very apt to promote the spread of the disease were many sporadic cases to appear.

REPORT OF LIEUT. COL. RUSH S. HUIDEKOPER, CHIEF SURGEON, UNITED STATES VOLUNTEERS, FIRST ARMY CORPS.

I arrived in Chickamauga early in the morning on May 26, and reported immediately in person to Major-General Brooke. I found that no organization of the medical service had been made. Major-General Brooke was in command of the entire forces of Camp George H. Thomas, and was also the immediate commander of the First Army Corps. He had a general staff for the entire forces, and I was one of the first officers directly assigned to the staff of the First Corps who had reported. The deputy surgeon-general of the Department of the Lakes, Colonel Hartsuff, was the senior medical officer on General Brooke's general staff. I found that a medical supply depot had been established at the railroad station in charge of Major Comegys, who was dispensing medical supplies in small quantities on irregular requisitions approved by Colonel Hartsuff.

I applied to the Adjutant-General for a list of the troops of the First Army Corps, and immediately proceeded to visit their camps and personally to obtain information in regard to the available material for the medical service. The First Corps consisted of twenty-seven regiments of infantry, as follows:

First Division.—First Brigade: First Ohio Volunteer Infantry, Third Wisconsin Volunteer Infantry, Fifth Illinois Volunteer Infantry. Second Brigade: Third Illinois Volunteer Infantry, Fourth Ohio Volunteer Infantry, Fourth Pennsylvania Volunteer Infantry. Third Brigade: Sixteenth Pennsylvania Volunteer Infantry, One hundred and fifty-seventh Indiana Volunteer Infantry, Second Wisconsin Volunteer Infantry.

Second Division.—First Brigade: Thirty-first Michigan Volunteer Infantry, Third Pennsylvania Volunteer Infantry, One hundred and sixtieth Indiana Volunteer Infantry. Second Brigade: Sixth Ohio Volunteer Infantry, One hundred and fifty-eighth Indiana Volunteer Infantry, First West Virginia Volunteer Infantry. Third Brigade: Second Ohio Volunteer Infantry, First Pennsylvania Volunteer Infantry, Fourteenth Minnesota Volunteer Infantry.

Third Division.—First Brigade: First Illinois Volunteer Infantry, Twelfth Minnesota Volunteer Infantry, Fifth Pennsylvania Volunteer Infantry. Second Brigade: Twenty-first Kansas Volunteer Infantry, Eighth Massachusetts Volunteer Infantry, Twelfth New York Volunteer Infantry. Third Brigade: Second

Missouri Volunteer Infantry, First New Hampshire Volunteer Infantry, Ninth Pennsylvania Volunteer Infantry.

I spent the next few days visiting the camps of these regiments. I found that some of them had brought with them, especially in the case of some Western regiments, liberal supplies of medicine and convenient boxes for holding them. In other cases they had come absolutely unprovided with medical supplies. I found in each regiment 3 medical officers, consisting of a surgeon, with the rank of major, and 2 assistant surgeons, with either the rank of captain or first lieutenant, which varied with the States from which the troops came. From some States 3 hospital stewards had been appointed to a regiment, while from others but a single hospital steward had been appointed. I found in some regiments a fairly good-sized detail or so-called hospital corps, consisting of druggists, young physicians, medical students, and other men, selected for the special work, who wore brassards. In some regiments both the commanding officer and the surgeon were extremely satisfied with and proud of the medical organization which they had provided for their regiments. In other cases no organization whatever had been attempted. I issued a circular requesting a roster of medical officers and available men for Hospital Corps service, which was in most cases complied with. During this preliminary inspection I visited, with the regimental surgeon, the company streets, line of company cook tents, and sink line of each regiment, and looked into the water supply. By the 1st of June I had obtained a fair idea of the material from which I could organize: but just at this moment an order came detaching a provisional brigade of four regiments under General Snyder to proceed to Tampa, and the First Ohio Volunteer Infantry, One hundred and fifty-seventh Indiana Volunteer Infantry, Third Pennsylvania Volunteer Infantry, and the First Illinois Volunteer Infantry were sent to Tampa. The vacancies caused by the detachment of these regiments were rapidly filled by the First Kentucky, in place of the First Ohio; the Third Kentucky, in place of the One hundred and fifty-seventh Indiana; the First Georgia, in place of the Third Pennsylvania, and the First South Carolina, in place of the First Illinois, requiring revision of the data which I had collected.

Up to this time I had no intermediate medical officers between myself and the regimental surgeons. Each regiment had more or less of a regimental hospital, mostly supplied with material which had been brought from their respective States. In some cases organization was so complete as to include special cooking outfits and details of men for regular service. In other cases the sick in the regimental hospital were supplied with food from their respective companies.

By permission of Major-General Brooke, I verbally requested the division commanders to appoint the senior regimental surgeons, so far as the rank of them could be determined, as acting division surgeons, which was done; and in some cases other regimental surgeons were appointed acting brigade surgeons, which gave me a medium of communication to the regiments and a means of collecting data which was more systematic than personal communications between regimental surgeons and myself.

On June 1 the three regiments of cavalry were organized into a brigade, and were temporarily attached to the First Army Corps.

This brigade consisted of the Third United States Volunteer Cavalry, First Ohio Volunteer Cavalry (temporarily), and First Illinois Volunteer Cavalry.

Organization.—With the three typewritten circulars issued by the Surgeon-General during the month of May, and General Orders, Nos. 58 and 76, from the Adjutant-General, I found my instructions and authority for organizing the medical service. As I interpreted it, I was directed to establish three division hospitals and one reserve hospital, and three division ambulance companies and one reserve ambulance company, which would furnish the entire care for the absolute sick of the command. I was authorized to leave one surgeon with each regiment, whose duties were to look after the hygienic condition of the command to which he was attached, to hold the morning sick call and determine what sick needed hospital care, and what sick could be treated (as at a dispensary) at the regimental surgeon's office, and be placed in quarters or on light duty, with the understanding that these latter men, though not capable of doing heavy duty, were still not so ill but that in case the regiment should be suddenly ordered to move they could be left to take care of themselves until otherwise provided for. I was instructed to have an administrative force, consisting of 3 chief surgeons of division, 9 chief surgeons of brigade, and a medical inspector. The hospitals were authorized to have 6 surgeons each and the ambulance companies were authorized to have 6 surgeons each. The organization, therefore, was to consist of the chief surgeon, with a medical inspector, 3 division surgeons, 9 brigade surgeons, 27 regimental surgeons, 4 hospitals with 6 surgeons each, and 4 ambulance companies with 6 surgeons each; a total of 89 medical officers.

I found available for immediate organization 27 regiments with 3 surgeons each, a total of 81. With the 12 surgeons to be appointed by the President for divisions and brigades, a medical inspector, and myself, I had a prospect of 95 medical officers. The difference between the 80 medical officers authorized and 95 left a very narrow margin for cases of illness, leaves of absence, or other causes of diminution in the service.

My authority for organization provided for 1 hospital steward for each regiment, 1 hospital steward for each division headquarters, and 1 for corps headquarters, 7 hospital stewards for each ambulance company, and 6 hospital stewards for each hospital. I found that the hospital stewards, like the regimental surgeons, were component parts of the regiment, appointed by the governor of the State or the commanding officer.

I was authorized to furnish each regimental surgeon with 1 Hospital Corps private, each brigade surgeon with 1 Hospital Corps private, each division surgeon with 1 Hospital Corps private, and 2 Hospital Corps privates for my own office. Ninety Hospital Corps privates were required for each hospital and 104 for each ambulance. These Hospital Corps privates did not exist.

The act of Congress which provided for the organization of the Volunteer Army had neglected to provide for its Hospital Corps, but General Orders, No. 58, charged the commander of the army corps "with full control of the transfer from its line of members of the corps."

On arriving at Chickamunga Park I found in the First Division, First Corps, a hospital of some 120 beds. It had been established by the deputy surgeon-general, and was in a way taking the place of a general hospital, as it received sick not only from the regiments of the First Corps, but from the artillery and from other organizations. This hospital was in charge of Captain Wakeman, an assistant surgeon of the Regular Army.

Early in June Maj. J. H. Hyssell, assigned as chief surgeon to Second Division, First Corps, and Maj. J. D. Griffith, assigned as chief surgeon to the Third Division, First Corps, arrived, and I immediately undertook the organization which I was instructed to carry out.

I took the list of names furnished me by the commanding officers or surgeons of regiments of the men whom they had brought for hospital purposes, and requested the adjutant-general, First Army Corps, to transfer these men to the Hospital Corps, which was done.

From time to time I requested the detail of various medical officers of the regiments for duty with the medical service, First Corps, and they were ordered to report to me for assignment to duty. I also requested the detail of the hospital stewards of the various regiments for duty with the general medical service.

When these details of medical officers and hospital stewards were made I was able to furnish the division surgeons, Second and Third Divisions, and Captain Wakeman—in charge of First Division hospital—with medical officers, stewards, and a certain number of privates, legally assigned to the medical service.

At this point I met with a sudden and, in some cases, violent opposition. Some commanding officers of regiments whom a few days before had furnished me, with pride, a list of their regimental hospital service, suddenly changed their view and objected to any transfer from their regiments. In one regiment which had 48 men with brassards on their arms, the brassards disappeared entirely, and on my next visit I was told by the regimental surgeon that these men were nothing but company bearers, detailed from time to time for local work. In another regiment after the order of transfer had left the Adjutant-General's office and was on its way through division and brigade headquarters, the regimental commander returned the men in his hospital to the ranks and claimed they were not intended for hospital service. Considerable objection and, in some cases, formal protest was made to the detail of the additional surgeons in each regiment to the general service. In one division five regimental commanders went so far as to hold a meeting and send their respective governors a 200-word telegram against being deprived of these component parts, in the shape of regimental surgeons and hospital stewards, of their regiments. However, before their protest could be of value the Adjutant-General had issued his order and had made details. On the 29th day of June the Adjutant-General had detailed every medical officer of the twenty-seven regiments for assignment to duty by me, and on June 30, pursuant to Army Regulations, No. 11, I had the medical officers report to me in person at the First Division hospital and draw lots for relative rank in the cases where the commission had been the same day.

I then made final assignment of 1 medical officer to each regiment and 6 each to the hospital and ambulance companies.

Late in June Major Parkhill, assigned to the First Division, First Corps, had reported for duty, but in the meantime Lieutenant-Colonel Senn, chief surgeon,

Sixth Army Corps, and Maj. John Woodbury, a division surgeon, Sixth Army Corps, had also reported to General Wilson, and from having no chief surgeon of the First Division I found the administration of this division somewhat complicated by an excess of chief medical officers.

During June all the chief surgeons of brigade, appointed by the President, had reported for duty. I then had, so far as officers were concerned, my complement of 3 division surgeons, 9 brigade surgeons, 27 regimental surgeons, and 48 surgeons appointed respectively, 6 to the four hospitals and four ambulance companies. Of the details of regimental hospital stewards I had reassigned 1 hospital steward each to the regiments from which they came and the others to the hospitals and ambulance companies. In addition to the Hospital Corps men transferred from the regiments, I had received from various recruiting stations 95 Hospital Corps privates and had a total of 454 Hospital Corps privates.

The growth and demand for immediate work in the three division hospitals had limited me in establishing all hospitals and ambulance companies. I therefore had deemed it expedient to hurry the organization of the three division hospitals, and early in June had organized the reserve ambulance company, which I used as a training school, and which furnished the ambulance service for the three divisions during the month of June.

I selected for command of the reserve ambulance company, Maj. James Johnston, surgeon Sixteenth Pennsylvania Volunteers, an officer whom I had known in the National Guard of Pennsylvania, and whose energy, and faithful, conscientious work and executive ability through the entire summer has justified my selection of him. Major Johnston entered heartily into the system of organization and furnished me most valuable service; he, from study with me of the organization and of what was needed, and from daily conversation and consultation, understood thoroughly the details of the work which we had to do, and knew, as I did myself, much of what was still in such a condition that it could not be put on paper.

During the month of June all the later transfers of Hospital Corps men from the regiments and the recruits received from the recruiting stations were sent directly to him at the Reserve Ambulance Company, where as rapidly as possible the qualifications of the individual men were studied, and it was determined whether they were best fitted to be assigned to hospitals or to ambulance companies.

We followed throughout, however, the principle of assigning the transferred Hospital Corps men back to the hospitals and ambulance companies from the divisions from which they had come, so far as it was practicable and proper. Early in July I commenced to reassign medical officers who had been serving in the Reserve Ambulance Company back to the division from which they came to take charge of the division ambulance companies which I then organized. At this time I organized the reserve hospital and placed in it, again as a training school, the surplus Hospital Corps men who exceeded in numbers the 114 men authorized for the Reserve Ambulance Company.

At this time, however, I met with a sudden and unfortunate obstacle to the organization. The protest of regimental commanders through their Governors and Senators, and the support which they received from sensational public opinion and the press bore effect. The first orders came detaching portions of the First Division, First Corps, and ordering them to Charleston, and Major-General Brooke instructed me that regimental surgeons who had been detailed for general service should be returned to their regiments. The first officer I lost was my valued assistant, Maj. James Johnston. Fortunately he had an able successor, Maj. Frank Boyd, Third Kentucky; but Major Boyd, with all his ability, was not familiar with the details as his predecessor had been.

As the First Brigade and Second Brigade, First Division, First Corps, left Chickamauga, I was obliged not only to lose certain officers who had already been trained in the Reserve Hospital and Ambulance Company, but the hospital service of the First Division hospital was broken up by the loss of men who were familiar with the details of its routine.

During this entire organization of the personnel and in the reassignment of medical officers to regiments, I took special pains through the chief surgeons of divisions to use every courtesy possible in consulting the wishes of the regimental commanders as to what medical officer of the three they wished left with the regiment. I met with very little gratitude for my courtesy. I used every courtesy possible in consulting regimental commanders and the senior surgeons of regiments as to the privates to be transferred to the Hospital Corps, and for my courtesy in a majority of instances I met a rebuff or vigorous protest. In many regiments privates made application on official blanks to the Adjutant-General through military channels for transfer to the hospital service, and had their papers

stopped at regimental headquarters. The surgeons with the regiments were forbidden in many cases by their commanders to furnish me with the names of the men who had enlisted for hospital purposes, or desired transfer.

By July, as the hospital service and need of ambulance service had grown, and it was an absolute necessity for me to have a larger number of nurses, I made a final appeal to Major-General Brooke, stating the opposition which I had found from the regimental commanders. He authorized me to take 150 men, selecting them with as much judgment as possible.

I made a list based upon the personal applications which individuals had made to me, stating that their commanding officers had refused to forward their applications, and based upon recommendations of regimental surgeons who desired to aid the organization. When this became known, a few commanding officers immediately sent in lists of men to be transferred, and the entire transfer was made by the Adjutant-General in one order. When these men reported, I found that certain officers had selected drunkards, epileptics, and other worthless men not wanted in the regiment and had sent them to me. In one case the detachment of men transferred to the hospital service was called by the regimental commander, and, in the presence of their comrades, the men were told as a farewell that he, their commander, was ashamed of them and all that he could imagine was that those who made application for Hospital Corps service had done so because they were cowards and afraid to go on the firing line; that the best thing he could wish them would be that they would go to Cuba to nurse the yellow-fever patients (the inference being, and there die). This was the material provided for and furnished me to take charge of and nurse the sick in the First Army Corps.

The organization of the hospitals of the Second and Third divisions.—We drew new tentage in limited quantity at first, gradually increasing the size of the hospitals as the demands required; but the demands grew rapidly, and we were hampered by a limited supply of hospital tentage and a still more limited supply of cots and bedding, so that it was only well on in July before we obtained proper supply. Ambulances, wagons for hospital transportation, and other quartermaster supplies were obtained with scarcely any delay. The quota for the Reserve Ambulance Company was filled early, but those for the division ambulances were drawn slowly throughout June and early July, as I had not a sufficient number of Hospital Corps men to properly care for them. It was a constant strain through this period to furnish enough men for the absolute work required in the hospitals.

Supplies.—When I first reached Chickamauga I found the regimental surgeons drawing medicines in small quantities on informal requisitions or slips of paper which were passing through the deputy surgeon-general for approval before reaching the purveyor's depot. Many medicines were unobtainable or obtained only with the greatest difficulty in limited supplies. We were instructed to confine requisitions to the medical supply table.

Early in June, when I was ordered by the deputy surgeon-general to have requisitions made out based on the medical supply table for a three months' supply for the regiments, I attempted to carry this into effect. I found that medicines did not exist in quantities which allowed of this being done, and I steadily continued to approve the informal requisitions for such medicines as were immediately needed, and for such as I could learn were in the purveyor's depot and were obtainable.

I was further instructed to have the issue of medicines to the regiments made through division hospitals. This was carried into effect at once in the First Division hospital, but was ordered for the Second and Third divisions at a time when these hospitals had not been completely organized, and were not in such shape that they could issue medicines. For a time in the Second and Third divisions medicines were obtained only in small quantities and with the greatest difficulty. I continued to persistently approve requisitions for small quantities, which I believed obtainable, on the ground that the regiments had not yet been issued the medical chests and means of taking care of large quantities of medicines, and many of the regimental requisitions were as persistently disapproved by the deputy surgeon-general, and refused at the medical purveyors. I constantly requested that the medical chests should be issued to us. At the outset there were no desks for medical officers or stationery of any kind. I was obliged to go personally to a printer in Chattanooga and at my own expense have printed blanks on which the morning reports of sick could be made.

On June 11 I forwarded my Saturday report to Washington and requested that proper supplies be furnished me.

When finally early in July a limited number of medical desks arrived we were obliged to rob them of the reports of sick and wounded and other stationery to supply surgeons of regiments who had not yet been supplied. In addition to these

Saturday reports which I made during June to the assistant surgeon-general at Washington, I made daily at 4 o'clock a report of the condition of the medical department and its needs to the deputy surgeon-general, which reports I was told were embodied with similar ones from the Third Corps and sent in the evening telegram to Washington. I was constantly assured that medical supplies of surgical chests, medical chests, field desks for the medical officers, mess chests, food chests, cots, bedding, and other hospital supplies and medicines in proper quantities would arrive. After one urgent appeal through Major-General Brooke the deputy surgeon-general purchased medicines in Chattanooga or elsewhere, but until toward the middle of July many of the regiments were obliged to obtain their medicines through the generosity of neighboring regiments generously supplied by their State governments, or by direct purchase themselves of necessary articles, which was done at their own expense.

When in July the movement of the troops from the First Division to Charleston and Porto Rico began, supplies had commenced to arrive in large quantities, but I was obliged to furnish the reserve section of the First Division and the First Brigade, First Division, with sufficient supplies. When later headquarters First Corps and the Second and Third brigades, First Division, were ordered to move I found many supplies not obtainable. The deputy surgeon-general disapproved my requisitions and those of the chief surgeons, Second and Third divisions, as being in excess of what was allowed by the medical supply table. I then made a final appeal to Major-General Brooke, who, over the disapproval of the deputy surgeon-general, approved my requisitions and ordered the supply-depot to furnish what I required.

I then found, however, that the purveyor's depot did not contain supplies which it was supposed to have. I telegraphed to the Surgeon-General, who authorized me to purchase at Newport News such supplies as I could which had not been obtainable at Chickamauga.

In order to fit out the brigades, First Division, First Corps, for their immediate movement, I was obliged to restrict the Second Division and the Third Division somewhat in their supplies, but approved their requisitions for complete supplies; and as I was assured that supplies were on their way to Chickamauga I supposed and trusted, although I have never heard, that they were given their full quota by Colonel Hoff, chief surgeon Third Corps, who took charge of these two divisions as chief surgeon when headquarters First Corps left Chickamauga.

Sanitary condition.—By reference to my communication of June 11, referred to above, it will be seen that I considered then, as I do now, that Chickamauga Park afforded and is an excellent location for a camp. As I then said, the water was good, but deficient in quantity, which was being remedied by the introduction of a pipe line and the sinking of drilled wells, which it was supposed would supply water in ample quantity. The troops of the First Army Corps were already located when I reached Camp George H. Thomas. At the outset I visited each and every regimental camp in company with the regimental surgeon, recommending to him what changes and precautions should be taken in regard to cleanliness, the company kitchens, the men's sink, and the water supply.

From that time until I left Chickamauga on July 23, I visited the entire three divisions every two or three days. I usually visited two divisions on one day and one on the alternate day, except at times when excess of office work prevented me covering the ground in less time than three days. Upon the arrival of the division surgeons I visited the entire division of each with him. The camps of the First Division had the inspection of the division surgeon, Major Parkhill, aided for a time by Lieutenant-Colonel Senn, and at all times by Maj. John Woodbury. This division had its hospital under the charge of Maj. William Wakeman, United States Volunteers, a promoted Regular Army surgeon. Two of the three brigade surgeons, Majors Stevenson and Birmingham, were Regular Army officers.

Maj. J. H. Hyssell, chief surgeon Second Division, and Maj. J. D. Griffith, chief surgeon of the Third Division, were medical officers of ability, thoroughly conscientious, and untiring in their inspections of camps and in attention to their division hospitals. Of the six brigade surgeons in these two divisions, three, Majors Kendall, Glennon, and Mearns, were Regular Army officers of recognized ability.

On July 1 Maj. Charles F. Mason, United States Volunteers, a Regular Army surgeon, was appointed medical inspector of the First Corps. It will therefore be seen that we had in the First Corps seven medical officers of the Regular Army charged with administration and inspection of hygienic conditions.

Until the end of the third week of June we had had excessively dry weather, and the diseases had been of a trivial character, such as diarrheas in new recruits, caused by the sudden change of food and surroundings; outbreaks of measles, which never proved serious; an outbreak of mumps in one regiment of considerable extent, and a large number of venereal cases. There existed in the First

Division a few cases of typhoid fever, which had been left at the time of the departure of the regular United States troops.

It was with extreme difficulty that proper policing, the cleanliness of the company streets, and the digging of sinks to the proper depth and keeping the contents covered with fresh dirt could be enforced. Again, there was a tendency after reviews and other large functions, where bodies of troops were kept out for some hours during the day, to be lenient with the men upon their return to camp on the ground that they were "volunteers" and "recruits," and it was claimed could not be worked as regulars could have been. It was no unusual sight to find junior line officers resting in their tents and the men left to their own devices while policing was put off until the morrow. It then too frequently happened on the next day that some other demand for military maneuvers allowed the policing to again be neglected and delayed until the morrow.

Much has been said in regard to the proper distance at which the men's sink line should be placed from the camp. While it is recognized that the distance should be as great as possible, yet placing the sinks at too great a distance had at times the disadvantage of placing them beyond the sight of the officers of the camp, and of the guards, who were instructed to keep the surrounding parks clean, and when sinks were placed at a considerable distance from the camp it was frequently found that the shady spots under trees of the surrounding ground were indiscriminately soiled, while with the sink closer to camp and under the eye of the guard they could be kept neat and properly covered.

Toward the end of June we had for the first time a considerable amount of rain, lasting several days. The collection of water from this rain showed that the sections of the ground in the center of the First Division, First Corps, and in several smaller localities in the Third Division, First Corps, lay upon a substratum of clay, which acted as a natural basin. In these localities the sinks filled with water, overflowing and contaminating certain springs and wells which, until that time, had furnished pure and good water. A week later, during the last few days of June, a number of cases of typhoid fever developed, when an immediate special inspection was undertaken, and the direct source of origin of some of the cases of typhoid fever was proven. The following table gives the sick report of the First Army Corps on the days of the adjutant-general's trimonthly report, and below is appended the reports from the three divisions showing the number of cases of typhoid fever existing on the last day of June:

Aggregate strength, number, and percentage sick. First Corps, taken from adjutant-general's trimonthly report.

Division.	June 20.			June 30.		
	Strength.	Sick.	Per cent.	Strength.	Sick.	Per cent.
1st Division	9,490	206	.....	10,832	180	.....
2d Division	9,197	331	.....	11,107	296	.....
3d Division	8,431	279	.....	10,126	315	.....
Cavalry brigade	3,127	99	.....	3,295	147	.....
Total	30,245	910	2.99	35,360	938	2.65

Division.	July 10.			July 20.		
	Strength.	Sick.	Per cent.	Strength.	Sick.	Per cent.
1st Division	10,803	214	.....	10,759	318	.....
2d Division	11,535	299	.....	11,666	396	.....
3d Division	10,909	477	.....	11,683	556	.....
Cavalry brigade	3,314	123	.....	2,470	149	.....
Total	36,561	1,113	3.04	36,578	1,419	3.88

FIELD HOSPITAL, FIRST DIVISION, FIRST CORPS,
Camp George H. Thomas, Ga., July 1 1898.

CHIEF SURGEON, First Division, First Corps.

SIR: I have the honor to report that of 69 cases, typhoid fever diagnosed in 61; typhoid fever is suspected in 3; convalescent from typhoid, 5; total treated as typhoid, 69.

Respectfully,

H. E. BRADLEY,
Major and Surgeon United States Volunteers,
In charge Hospital First Division, First Corps.

HEADQUARTERS THIRD DIVISION, FIRST ARMY CORPS,
OFFICE OF CHIEF SURGEON,
Camp George H. Thomas, Chickamauga Park, Ga., June 30, 1898.

Respectfully forwarded.

There are 9 cases of typhoid fever in division hospital and 19 cases of "suspects." Twelfth Minnesota, 3 cases; Ninth Pennsylvania, 2 cases; Second Wisconsin, 1 case; Twenty-first Kansas, 1 case; First New Hampshire, 1 case; First South Carolina, 1 case.

Suspects brought in this a. m., 1 from First New Hampshire, 3 from Ninth Pennsylvania, 1 from Twelfth Minnesota. In hospital, 7 from Twelfth Minnesota, 2 from Ninth Pennsylvania, 3 from Fifth Pennsylvania, 1 from First South Carolina, 1 from First New Hampshire.

Supposed origin of fever in Ninth Pennsylvania, contamination of water with surface drainage.

In Twelfth Minnesota, from ("suspects") (typhoid malarial?) bathing in Chickamauga Creek.

J. D. GRIFFITH,
*Major, Chief Surgeon, United States Volunteers,
Chief Surgeon Third Division, First Army Corps.*

On July 1 in the Second Division, First Army Corps, there were but 7 cases of typhoid fever, of whom 2 were convalescent. This division, with its strength of over 11,500 men, only had 12 additional cases during the first three weeks in July. It will be seen, therefore, that of typhoid fever on July 1, there were:

	Diagnosed.	Suspect.	Total.
1st Division	66	3	69
2d Division	7		7
3d Division	9	10	19
Total	82	22	104

Previous to July 1 a number of applications had been made for the issue of disinfectants. At this time an urgent appeal for the issue of disinfectants came from the regiments in the center of the First Division and from the brigade surgeons, Majors Glennon and Mearns, Third Division. These requisitions were approved by the chief surgeons of divisions and were approved by me, but when carried to the deputy surgeon-general of Camp George H. Thomas, they were disapproved, inviting attention to Army Regulations, 1462, forbidding the routine use of disinfectants. The disapproval of the deputy surgeon-general as to the use of disinfectants was carried to such a point that carbolic acid, desired for the treatment of chancreoids and other surgical purposes, was obtained with difficulty on the ground that it might be used as a general disinfectant.

From this time during the three weeks which I remained in Chickamauga I visited the division hospitals each at least once in every two days, and was in daily consultation with the chief surgeons of divisions in regard to the hygienic conditions of the camp. The Second Division, First Corps, was located on a sloping shale soil with good drainage, and with the exception of the outbreaks of measles, had but few cases of contagious diseases. The hospitals, Second and Third divisions, were neat and clean and were most faithfully administered by both the surgeons directly in charge of them and by the chief surgeons of division, and were beyond criticism, except for the lack of sufficient medical supplies and sufficient number of Hospital Corps men.

At this time I had frequent consultations with Major-General Brooke as to the removal of the camps of the First Division and of the Third Division, which were located upon clay soil, and twice had been instructed to consult with the commanding officers of the divisions as to the removal of the troops from the site on which they were located to new camping grounds, when telegrams from Washington notifying Major-General Brooke that the First Corps would be immediately removed from Chickamauga caused delay in taking action.

During July the troops of the First Division commenced to break camp. Twice brigades were reorganized and camps partially broken, when the order was revoked and the men reestablished themselves in their original location. Finally the newly formed First Brigade, First Division, was sent to Charleston, leaving its sick in hospital and a large number of slightly ill cases in quarters attached to

the Fifth Illinois Regiment, to which was also added a large number of recruits recently received. The departure of the First Division headquarters, the First Brigade, and then the Second Brigade, immediately preceding the departure of First Corps headquarters, caused the withdrawal of a number of surgeons from the First Division hospital, in order that they might accompany their respective regiments. To supply the places of the Hospital Corps privates apportioned to the departing brigades, I was obliged to detail a number of men temporarily from the reserve hospital and ambulance company and from the other divisions. This confusion of departure accounted reasonably for the somewhat demoralized condition of the First Division hospital, which, as already stated, with reasons already given, had never had the systematic organization which existed in the Second and Third divisions.

On July 23 headquarters First Corps left Chickamauga for Newport News. It was accompanied by the reserve hospital and ambulance company completely organized, with 12 commissioned officers, 213 enlisted men, 24 ambulances, 20 army wagons, and tentage and supplies for a hospital of 200 beds.

At Newport News this was augmented by the brigade hospital section, Second Brigade, First Corps, consisting of 3 medical officers, 60 Hospital Corps privates, 6 ambulances, 5 wagons, and tentage and hospital supplies for a hospital of 50 beds.

At Newport News the Second Brigade was encamped for several days. Instructions were issued to the brigade surgeon to have a thorough investigation made of the commands in this brigade and to eliminate the sick, who were left at the general hospital at Old Point Comfort.

Headquarters First Army Corps and the Second Brigade, First Division, First Corps, were embarked on six transports and left Newport News on July 28. The first transports reached southern Porto Rico on the evening of July 31, and after touching at Ponce reached Arroyo and commenced landing on August 2. Four transports with the headquarters, the troops of the First Illinois Volunteer Infantry, Fourth Ohio Volunteer Infantry, and Fourth Pennsylvania Volunteer Infantry, and with the ambulances and wagons belonging to the Hospital Corps, landed at Arroyo. On the *Seneca* there were 1 medical officer of the reserve hospital and 16 Hospital Corps privates.

The entire remainder of the Hospital Corps, officers and men, and the animals for transportation were on the other two transports—the *Massachusetts* and *Roumanian*—which, as we learned later, had grounded near Ponce, and the men only joined us more than a week later by coming overland. Immediately on landing the troops were placed in temporary camps at a short distance from Arroyo, and were rapidly scattered in small outpost detachments and in advance battalions toward the direction of Guayama.

In Arroyo the medical inspector and surgeon of the Third Illinois had established a small hospital in the building of the town cocking pit, which we were obliged to use temporarily for a number of cases which had developed sickness, and we were obliged to ask for a detail of privates from the commands to take the place of the Hospital Corps men who had not arrived.

Having but 1 officer and 16 Hospital Corps men to look after the unloading of the ambulances, wagons, and medical supplies which were being unloaded from lighters, mixed with the supplies of three infantry regiments who had ample force to look after their own stores and who acquired much which did not belong to them, a certain amount of property belonging to the reserve hospital and ambulance company was lost.

Some of this property was afterwards found in the various camps and recovered, but a portion of it was totally lost. As soon as the ambulances and wagons could be put together and the property had been collected and placed in them, they were removed by the use of bull teams to a well-located gravel field on the Arroyo, where a hospital camp was formed and was ready for occupancy by the hospital corps when it arrived from Ponce.

By this time the troops had taken possession of Guayama and had moved the advance outposts to the mountains beyond. On the afternoon of August 12 a general advance was ordered, and the entire hospital with its sick, then numbering some 120 cases, was moved during the night to a knoll at the edge of Guayama. During the remainder of August the troops were scattered for a distance of several miles around Guayama. Efficient service was rendered by the ambulance company making the regular tours twice a day at fixed hours, and being always ready in cases of emergency.

Here again difficulty occurred with the regimental commanders in the attempt of the regimental surgeons to establish and maintain regimental hospitals. For several reasons I was called upon to act energetically in checking them and consolidating the sick at the reserve hospital.

In the first place, I had my orders as to the organization of the medical service. In the second place, the constant military reasons for movement of troops rendered it important that they should not be hampered by having sick on hand, and the establishment of the regimental hospitals prevented the surgeons of the regiments from accompanying the commands and giving them proper attention. In the third place, I had just received a peremptory telegram from the assistant surgeon-general at Ponce, calling my attention to the fact of a building having been occupied at Arroyo. I was obliged again to resort to Major-General Brooke's never-failing justice and respect for orders for authority to consolidate the sick in the field hospital.

A week later I was furnished with a hospital building at Guayama, which, after a thorough cleansing and disinfection, was made into a ward of the hospital, in which were placed 30 beds, to treat the more serious cases of fever. At both the field hospital and at the ward in Guayama we had built ovens of brick, and with crushed and dried sugar cane for fuel. I ordered the complete destruction of all fecal matter and garbage. Notwithstanding the inspection which had been ordered at Newport News, it was found that, either through neglect on the part of one or two surgeons or a false courage on the part of men, who would not answer sick call for fear of not being allowed to accompany their comrades on the expedition, a number of cases of typhoid fever developed. In addition to these cases the other serious cases were malarial fever, of which the remittent type and a continued climatic fever lasting from five to six days were most common.

Considerable confusion existed at the outset in regard to the discipline of the hospital corps. Maj. Lawrence Smith, surgeon, First Pennsylvania Volunteers, who had been surgeon in charge of the hospital, had been taken ill while on the transport and had been returned to the United States, and unfortunately died. The books of the reserve hospital, including the personnel of the hospital corps and the list of property, could not be found.

As before stated, just before leaving Chickamauga, Major Boyd, surgeon, Third Kentucky Volunteers, had assumed command of the ambulance company. However, it required but a few days to completely reorganize. Major Boyd, assisted by Captain Taylor, assistant surgeon, Fourth Ohio, Lieutenant Colby, assistant surgeon, Thirty-first Michigan, in the ambulance company, and Major Bain, surgeon, Second Ohio Volunteers, in charge of the reserve hospital, with his hospital staff of assistant surgeons, deserve the utmost credit and recognition for the faithful way in which they overcame lesser obstacles and for the devoted, untiring energy to the performance of their duties.

In addition to the three regiments forming the Second Brigade, First Division, First Corps, we had at Guayama Troop H, Sixth United States Cavalry, Company F, Eighth United States Infantry, a battalion of four batteries, commanded by Major Rodney, a battalion of four companies of the Signal Corps, commanded by Colonel Glassford, and the First Troop Philadelphia City Cavalry.

On September 2 the troops in Guayama were left under command of Brigadier-General Grant.

Major-General Brooke, accompanied by his staff, Troop H, Sixth United States Cavalry, and Company F, Eighth United States Infantry, proceeded across the island to Rio Piedras, on the outskirts of San Juan. Here the troops were placed in a small camp, and the detachment of reserve hospital corps which had accompanied headquarters was placed in charge of Maj. Charles F. Mason, medical inspector.

On September 15 General Brooke assumed command of the United States troops in Porto Rico, and announced his former staff, First Army Corps, to their respective positions on his staff as a commanding officer of the United States troops in Porto Rico.

I had received absolutely no information in regard to the condition of the medical service in western and southwestern Porto Rico. On September 17 I was ordered to make an inspection of this portion of the island.

I left Rio Piedras on September 18 and made the inspection, making daily reports by telegraph and by letter to Major-General Brooke. I collected during this inspection a roster of the medical officers and Hospital Corps men, with an inventory of medical supplies, a copy of which I left for the chief surgeon sent to relieve me.

I beg to call attention to the valuable services rendered both at Chickamauga and in Porto Rico by Maj. H. P. Birmingham, chief surgeon, Third Brigade, First Division, First Corps, who had charge of the hospital at Ponce, which he administered with method, system, and a display of energy remarkable considering the conditions with which he had to deal.

On October 8 I was furnished by the adjutant-general, United States troops in Porto Rico, a copy of paragraph 34, Special Orders, 224, Adjutant-General's Office, *Current Series*, ordering me to report to the Surgeon-General in Washington. No steamer was available until October 18, when I left San Juan.

REPORT OF LIEUT. COL. A. A. WOODHULL, DEPUTY SURGEON-GENERAL UNITED STATES ARMY, ON CONDITIONS IN CAMP GEORGE H. THOMAS, CHICKAMAUGA PARK, GA.

[Dated August 7, 1898.]

In compliance with a War Department order (Special Orders, No. 162, July 12, Adjutant-General's Office, current series) I have made a sanitary inspection of the various camps and field hospitals at Camp Thomas, Ga., and of the Leiter General Hospital, and report as follows:

I personally examined every regiment in camp, excepting one or two that arrived during my visit and were assigned to brigades already inspected, and those that were ordered from the camp before I reached them in regular course. I also inspected all places where the sick are cared for.

The latest return gave 43,723 officers and men present, and 2,988 of these sick, exclusive of those sent to general hospital and those who have died or have been discharged for disability. This represents 6.83 per cent present sick, of which at least 4 per cent is grave, and both the rate and the gravity are increasing.

The determining conditions are (1) site, (2) water supply, (3) character of troops, (4) climate, (5) shelter and occupancy of camp, and (6) employment and control. These are not independent, but are conjoined factors treated separately in this report for convenience, but exerting their influence together.

(1) *Site*.—The camp includes an irregular area 10 by 12 miles square, or about 70,000 acres, bounded on the west by the Chickamauga Creek. The surface is both rolling and level, partly wooded and partly entirely cleared. The greater part has sufficient grade to carry the surface water into natural channels, that are dry except after rainfall. The timber is not dense and is free from undergrowth, so that the sun reaches the ground in nearly all places. There are no distinct swamps or morasses, but what are known locally as the "flat woods" should not be occupied, although some were camped in. The whole region is underlaid with magnesian limestone, which in some places crops out at the surface and in others is covered with dense and tenacious clay, varying in depth from a few inches to many feet. There are a few hillocks of gravel, I am told, but I saw none opened. The rock is irregular in density as well as in disposition. A part requires blasting and a part is fragile. Borings show different strata of varying degrees of hardness, with intermediate layers of dense clay. Communicating rifts may be expected in such limestone, permitting contamination of water over considerable distances. It is claimed, however, that no such rifts have been recognized in boring more than 30 wells. Their occurrence large enough to allow a free flow of water is nevertheless possible. These wells go to a gravel from which water rises near to the surface, but the engineer does not know whether the same bed is always reached. There are "sink holes" in various places that are not filled by any waste flowing into them, and some wells are roily after rain. It is manifest, therefore, that there is, at least, occasional intercommunication. When clay is encountered, and most of the camps are over clay, it holds water almost as cement would, making the construction and care of the sinks very difficult. In other cases the nearness of the rock to the surface makes them very shallow. The camps that are in low ground are consequently wet and very imperfectly drained. Since the middle or 20th of July a good deal of rain has fallen; previously the dust was spoken of as intense. There is a good deal of local feeling in favor of vacating the woods altogether and encamping entirely in the open. I think no camp should be in the "flat" or "low" woods, but the high woods are dry and are too sparse to interfere seriously with the sunlight.

(2) *Water supply*.—(a) From the Chickamauga Creek, which runs through an alluvial bottom, an extensive pipe system has been introduced from which water may be drawn by frequent taps. At the time of inspection this water was very muddy from repeated rain. In other respects there was no gross contamination, as far as recognized, except such as would naturally be found in a sparsely settled agricultural and somewhat malarious region. The sewage from the Leiter Hospital does not flow into the Chickamauga, as has been charged.

(b) There are numerous surface "springs," the most of which should not be used, but from which the men have drunk freely. The park commission has filled the more objectionable of these.

(c) More than thirty driven wells have been bored to water-bearing gravel. Four of these are less than 50 feet deep; the others range from 64 to 156 feet in depth—fourteen of them being more than 100 feet. The construction of the wells themselves is very good; the casing is iron hammered into a tight joint running down 15 feet, and the pump is placed on a tight cap elevated above the surface. I think no surface contamination need be feared, but it is probable that some are directly polluted through neighboring sink holes. Several have been condemned

on suspicion, of which a part at least is well founded. In one instance (the Jay's Mill well) the pump has been placed in a so-called spring that receives a great deal of objectionable waste, and after a heavy rain the wash runs into the top, as is shown by the flood mark.

(d) There are also on the grounds, and within a few miles of the park, very large springs having a prodigious flow, from which some regiments haul their water in barrels or tanks for their immediate supply. I was unable to examine the springs that are beyond the park limits. One large spring a few hundred yards from its camp, from which the First Mississippi is drawing water, seemed liable to be hurtful unless the water is boiled.

The effort has been to limit the drinking water to the wells and the safe springs, and, after precautions, to the pipe line; but there is no doubt that water from all sources—from the pipes and from the surface springs—has been freely used without preparation. This occurred repeatedly within my personal observation; and, before the supply was as general as now, doubtless was much more common.

Filters of two varieties, both of which require to be used with the same water, have been introduced, but only recently. There is general complaint, which I think is well founded, that under the conditions the apparatus is insufficient and inefficient. It was repeatedly reported that the Berkefeld filter would require cleansing after preparing half a bucket of water, and many have been broken in the very act of filtering. In very few regiments are all the Berkefeld filters in operation, and in some they were distinctly abandoned after a few days' use. Practically, as already remarked, a great many men drink without discrimination any water they find. Without doubt, the best arrangement is that of the Third Tennessee, where all the 11 filters supplied to the regiment are concentrated into one battery under the charge of an officer; but even here, where extreme care appears to be taken, four bougies were broken already. The supply of water is insufficient, and has been more so. Where the filters are depended on the flow is not adequate. The very best showing is that of the Third Tennessee, just quoted, which gives 1 barrel and 4 buckets, or, at the outside, 66 gallons per company of more than 100 for twenty-four hours for all potable and culinary purposes. Including unavoidable waste, that does not allow more than 5 pints per man. This is a probable maximum, and from this it dwindles to a zero of filtered water, and a very small amount of that which has been boiled. There are general instructions to boil all the water, whether filtered or not. In the only regiment where I could be sure that order was actually enforced (Eighth Massachusetts) no typhoid has yet been recognized, and although the camp is very low and wet and remittent fever has occurred within the last fortnight the general sick rate is only 2.56 per cent. As will appear later I do not think the water is solely at fault in the spread of typhoid, but the more copiously and the purer it can be furnished the better will be the general health.

There is a general complaint of the difficulty of getting barrels for the storage of water, and, where it is hauled from springs, for its transportation. Some regiments have bought their own barrels, and occasionally a tank has been procured. Barrels are not particularly costly, and it is recommended that the Quartermaster's Department be authorized and required to supply these freely, and that those necessarily abandoned be expended.

(3) *Character of troops.*—As is well understood, the regiments at Camp Thomas have all been newly raised. Some of them contain many immature men; others have an undue proportion of men positively unfit for service from preexisting disability; the most come from very different climates; for some the food is unusual and difficult of assimilation; the most of those who have had field experience have been in military camps of short duration, where there was no occasion to take especial care of themselves. As a consequence, in everything pertaining to field hygiene, the mass are sadly deficient. Not only are the most of the officers practically as ignorant as the men, but the regimental discipline varies very much, and in many cases appears still extremely lax. This is important in its bearing upon the apparently little things that in the aggregate make up the foundation of camp sanitation. The dirty camps are the sickly camps here as elsewhere. But discipline and intelligence have their reward also. Without specifying instances low in the scale, attention is invited to the Eighth Massachusetts, already cited, where the positive enforcement of orders by punitive measures when necessary has resulted in the actual use of only boiled water for drinking, with exemption from typhoid fever and a low sick rate as a probable consequence. Again, in the case of the Fifth Missouri, I was informed by the colonel that especial pains had been taken to exclude lads, and that the average of his men was 28 years. In this command, whose surroundings were extraordinarily bad, where 1,300 men had been confined since May 27 on an area 320 by 230 yards, shut in by other regiments

with sinks immediately about them and constantly encroaching nearer and nearer, with necessarily narrowed and crowded streets, although typhoid fever has appeared, the actual sick list was relatively low, being 3.2 per cent. This I attribute to the greater resisting power of these full-grown men. An immature regiment must have been badly shattered under such conditions.

(4) *Climate.*—The heat and humidity at Camp Thomas are very great now. Early in the season the weather was dry, with occasional showers. Since the 20th of July, and perhaps earlier, copious rains have fallen. At first there were clouds of dust; later, the heavy rain has run off by the natural channels, except in the "flat woods," but has made the sinks still more difficult to take care of, has rendered the tents damp, and doubtless is increasing the causes of malarial disease.

(5) *Shelter, occupancy, and arrangement of camps.*—All the troops are under canvas and nearly all the canvas is overcrowded. The tents are of many patterns—a few shelter, more conical and conical wall; some State tents of various sizes, the most of which are so-called "flood" tents of the Mississippi Valley, very old and nearly all leaky, and the greater part the improved common or A-wall tent. The occupants vary from 2 in the shelter to 4 and 5 in the A, 6 or 8 in the "flood," and 15 or 16 in the conical.

Many of the regimental sites are precisely the same as those occupied from the beginning. A few of the regiments have been moved, and it is probable that more are now being changed, but at the time of my observation many of the commands had been in absolutely the same position for two months or more. Not only were the camp sites the same, but in the most instances the tents themselves stood where they had first been placed. In scarcely any instance was fresh ground available, as it should be, upon which the tents might be moved laterally every week or ten days. Consequently the ground itself is being poisoned imperceptibly, but persistently, by the human body without the disinfectant and redeeming action of direct sunlight upon it. The contents of the tents, such as blankets, straw, and the like, have been irregularly removed into the open air, but, as a rule, not often enough. Direct touch showed in many instances that these articles and the ground were damp. The camps, speaking generally, were crowded not merely as to inhabitants but as to neighborhood. There was abundant room between divisions and generally between brigades, but many of the brigade camps were too compressed, and with some of the regiments the compression was extreme and in defiance of all sanitary laws; this in addition to the tents themselves having too many occupants. The difficulty probably arose originally from the expectation that many more troops would be sent into the park, for whom space must be reserved. In some cases higher authority arbitrarily established the regimental lines. Whatever the reason, the effect is clear—the tents are overcrowded and without sufficient adjoining space, the streets are narrow, and the soil is becoming more and more charged with filth. Owing to reasons previously explained, competent sinks were made with difficulty and were multiplied on account of their shallowness and the rapidity with which they filled with water. They thus encroached more and more upon the open space and intruded toward the camps. For instance, in the Second Arkansas, Second Brigade, Second Division, Third Army Corps, the men's sinks were within 30 yards of the kitchens, and were very offensive. The kitchen sinks were intermediate and so full and so foul that maggots were abundant on the surface. In the Fifth Pennsylvania the camp site was lower than the sinks, and during recent rains they overflowed and flooded the camp. The sick report of that regiment was 11 per cent, including 25 cases recognized as typhoid and 15 supposed to be of that disease, with the sick rate increasing.

More than half of the men slept on the ground. In some regiments the tents were floored, in others cots and field bedsteads were arranged, but always at private or regimental expense. The motive in many instances doubtless was comfort, but in one regiment (Third Tennessee) the men bought the cots because they had learned by experience in civil life that it was harmful to sleep on the ground in that climate. In a very sickly regiment (Ninth Pennsylvania) the medical officer pointed out a very high three-story bunk, whose tenants he declared the healthiest in the command. A group of three is too small to reason from, but it is significant that among much sickness these men escaped. The sanitary advantage of being on the ground is freedom from dampness, and especially escape from the immediate influence of the ground air, which, under the conditions described, must be peculiarly deleterious. It is recommended that in all camps of position in southern climates the tents be floored, with a considerable space beneath, and that the floors be portable, so that they may be moved (within the camp) when necessary for change of site or for police. The expenditure of a few feet of lumber

when the regiment departs is well balanced by the greater physical efficiency of the men.

Quite independently of any specific contamination of the water supply (and were the general water supply thus contaminated the typhoid fever would also be general, which it is not as yet), the pollution of the soil by fecal discharges, specifically diseased or healthful, leads to the occurrence of diarrhea, to general physical depression, moderate fever, and undermining the man's health, and whether an imported case or not is necessary to fire the train, it is the universal experience of armies that outbreaks of typhoid fever will occur under just such circumstances. This is perfectly understood and always anticipated by sanitarians where precautionary measures are not carried into effect. In this case, besides having a congenial soil fertilized day by day for such seed, the seed itself was introduced directly by various regiments, as Thirty-first Michigan, First South Carolina (as reported, regiment has left the park), Fifty-second Iowa, which brought no acute case but was infected before arrival, and Ninth Pennsylvania, which has had nearly 100 cases in all. Besides which, certain regiments (Fourteenth Minnesota, Second Ohio, Third United States Volunteer Cavalry) have treated cases for considerable periods in the camps themselves. It can not be necessary to enlarge on the facilities for the spread of this disease that are afforded by fatigue, heat, moisture, overcrowding, dust, and flies; and all these are present.

(6) *Employment and control.*—The physical and the moral influences of occupation are factors that, speaking generally, do not seem to be thoroughly appreciated in this camp. I received the impression—it is only an impression and may be erroneous—that the most of the men were overdrilled. Nearly constant occupation or amusement is the best antidote for the ennui that extinguishes some soldierly vitality, and idle men are likely to be sickly men, but monotonous drills in hot climates have their limits, and should be arranged with discretion. In at least one command drill was from 6 to 8 a. m., and with parades from 3.30 p. m. until dusk. So far as temperature is concerned, the hours were well suited, but to fall in at 6 o'clock implies for the majority of men, where the sinks are few to a regiment, extreme discomfort in the matter of physical relief. The afternoon cessation of such exercises leaves the clothing drenched with perspiration and the men without opportunity to dry it or themselves before sleeping. I was told, but did not verify it, that some drills had been held at 1 o'clock, but that seems hardly credible. As far as I could learn, no attempt has been made to carry out practice marches or to move the commands from the park itself, but those battalions that have moved out for two or three days' target practice always return in much better health. In my judgment systematic military excursions should be utilized for the health, to say nothing of the efficiency, of the men. The discipline of the several regiments varies greatly, but where it is intelligently exercised the condition of the men is the better, as shown by their camp police, their personal appearance, and especially their abstinence from unauthorized water supply.

The refuse from the thousands of animals and the other insoluble debris of the camp add to the aerial and indirectly to the aqueous pollution. A few of the regiments attempt to burn their kitchen garbage in extemporized furnaces, but there has been no systematic arrangement, as might easily have been made, for formal crematories.

Some officers attribute much of the sickness to the sale by numerous vendors of milk, pastry, fruit, and vegetables, a considerable part of which is supposed to be not in the best condition. It is probable that some of these comestibles lead to moderate diarrheas, as in fact the natural water does, and predispose to other intestinal troubles. With a fair inspection I believe that these peddlers add to contentment of the men, to many of whom the ration is not yet perfectly satisfactory. (I verified occasional complaints of unsound beef and spoiled bacon, but they were not numerous.)

This outline, which might be filled with very copious detail, for which I have the notes made on the spot for every regiment, should suffice to account for the serious and increasing sickness in that part of the army.

The inspection of the hospitals and of the sick lists of the regiments shows a complementary condition. My orders did not cover any question of supply or of administration, but it was absolutely necessary to touch these subjects at certain points in order to obtain an intelligent view of the situation.

Under the general plan of field administration all the sick who may not properly be cared for in their own tents, the "quarters" of garrison, are expected to be treated in the hospitals of their appropriate divisions, which are conveniently situated for access by ambulance. These division hospitals are in turn subdivided *in theory* into brigade hospitals, both as to personnel and material, so that if neces-

sary its proper allowance of men and supplies can accompany such a detached command. At the time of my inspection there were four intact divisions in the camp, a cavalry brigade, an artillery brigade, and a headquarters escort, provost guard and employees. When the First Division, First Corps, left Camp Thomas about the 23d of July, it left 153 cases in the division hospital, doubtless because the general hospital could not receive them. The hospital was placed under Major Brechemin, United States Volunteers (captain, Medical Department, United States Army), with four contract surgeons as assistants. At the date of inspection, August 3, 88 cases remained, 60 of which were typhoid fever. There had been 17 deaths at the hospital in all, and several of those remaining were critically ill. When the change of administration was made the general condition of the hospital and of the patients must have been deplorable, judging from special reports in the office of the chief surgeon Third Corps, that I had the opportunity to read. From those reports some of the patients had bed sores, and the general administration lacked order and care.

At the time of my inspection there were six beds to a tent, including the typhoid cases. The general police of wards and grounds was fair and evidently improving. The natural drainage was good, but the site was bordered by low ground on three sides and any considerable enlargement would have been impossible. Of 33 privates of the Hospital Corps 20 were on duty as nurses in reliefs of twelve hours each. Originally there were no sheets, but these had been supplied by the Red Cross. There was no hospital fund. There was extreme difficulty in obtaining medical supplies, a week being named as the ordinary limit. For two days there was no corrosive sublimate to disinfect the bedding. No strychnia at all was obtainable. The hospital then needed both strychnia and whisky. Water was formerly obtained from a large spring, but now from a well. There is no filter, but it is supposed to be boiled. It is doubtful whether it all is boiled. The sinks which the patients are able to use are bad. A detail of 50 men sent by the Second Division from a Minnesota regiment the previous day to dig sinks declined to do so under the alleged orders of the division adjutant-general and merely policed the grounds. As no more patients were likely to be received, the condition of this hospital will improve, and under Major Brechemin's intelligent energy the confused records will be made more plain. In my judgment there should be hospital accommodation to which all the remaining cases might have been transferred when the division moved, but there was none. There were 5 cases of venereal disease awaiting discharge, although the command had actually left the park ten days previously.

Hospital, First Division, Third Corps.—At the time of my inspection, July 27, the hospital control was just being assumed by a newly-arrived officer, who could not be regarded as responsible for its defects nor be credited with its advantages. The staff consists of 5 medical officers, and the enlisted force was 95 noncommissioned officers and privates of the Hospital Corps. The hospital consists of 30 hospital tents for all purposes, containing at this date 179 patients. The tents are too crowded, containing 8 patients apiece, and they have had 10. There is insufficient space between the wards, the grounds are not adequately ditched, and the approach to the patients' sinks is very poor. The sinks themselves are very bad. The hospital is not divided into brigades. The Red Cross supplies about one-half of the clothing and the bedding. The floors that have been supplied the tents were furnished by regimental means. The hospital fund started with \$50, and there was \$48 at the end of the month, but considerable expenditures had been made by emergency funds supplied by the regiments. Very serious complaints are made as to the inadequacy of the medical supplies. No atropine is on hand, and the salol has been bought by private means. The chloroform supplied 1st-10th of June was regarded as inert, although this might depend on the inexperience of the administrator in open-air work, but the bottles contained a small part of the marked contents. Chocolate-coated quinine tablets in stock, Parke, Davis & Co., tablet 125 (563360 in red), are insoluble and found in the stools. I am informed in Washington that this is not supplied by the medical department. It was evidently regarded there as part of the regular supplies. The food as a whole is good, and the special diet kitchen was very neat and appeared excellent. Two of a case of 12 sides of bacon then on hand were bad, and I personally observed the maggots in them. There was only one very small coffee mill, apparently belonging to a mess chest, for the whole hospital and one man was employed all day in grinding coffee. The average duration of treatment, excluding the typhoid cases, is stated at three or four days. Cases are transferred to Leiter and to McPherson general hospitals. Fifty men are employed as nurses and are on duty from twelve to eighteen hours continuously, day by day. As far as observed, all the hospital cases of this division were taken into the hospital.

Second Division, Third Corps.—Nearly if not all of the regiments in this division maintain regimental hospitals. For instance, the Ninth New York has from 6 to 8 men in a local hospital out of 60 supposed to be in quarters. In the division hospital are 33. The regiment has had about 30 cases of typhoid, but the proportion of malarial cases is now large. First Arkansas has 37 in hospital and 85 in quarters. When examined there was a small regimental hospital maintained by individual subscription, in which were 3 cases of dysentery alleged to have been returned from the division hospital. First Maine has 7 men in the regimental hospital. Of the 42 officers, 7, or 16.67 per cent, are sick—all with typhoid fever.

The hospital of this division (Major Bradbury, First Maine, in charge) consists of 37 hospital, 8 conical, and 6 common tents, containing 285 cots and 250 patients. Eight medical officers are present for duty, with 6 stewards and 138 privates. Of the latter, 45 were men of the line detailed from regiments. To this date 1,190 patients had passed through the hospital, and 56 typhoid cases were present. Were all the men in the division who should be in hospital present it would be overcrowded, as it has been when men were at times literally upon the ground, and at other times medical officers have given up their own accommodations to them. Sometimes typhoid patients are returned to their regiments for convalescence in order to make room. Speaking generally, the condition of the hospital is very good. The streets are broad and well policed; the general police is excellent; the ordinary wards are very good, but the typhoid ward is too crowded, and formerly was still more so, when the cots touched each other. There is great difficulty in disinfecting the bedding. The hospital is brigaded, but not the attendants, and there would be difficulty were the command suddenly broken up. There are several brigade surgeons at this hospital, and it is plain that they do not regard that as their proper sphere. The records are well kept, but great difficulty is experienced in obtaining supplies. This seems to be partly technical and partly from insufficient stores. I examined the record of a requisition made on the 1st, acted on on the 13th, 17th, and 19th, and on the 22d filled in part. I saw another where two articles were supplied out of seventeen authorized. The hospital finds it practically impossible to get intestinal antiseptics, such as salol, or strychnia, or subgallate of bismuth. It is very largely dependent upon regimental and Red Cross funds, and a case of boxes to hold regimental supplies has been arranged to stimulate regimental interest, which is quite foreign to the principle of these organizations. The Red Cross supplies 1,500 pounds of ice daily; milk, food, comforts, and some absolute necessities, as medicines, themselves.

Second Division, First Corps.—Brigadier-General Poland, since deceased, particularly requested me to recommend that the water which is being drawn for his command from the spring of the Rev. Mr. Park, outside of the public grounds, should be paid for. He made this request with much earnestness, and it has proved to be one of the latest of his official acts. I heartily commend his request.

The hospital cases of the First Brigade doubled in July. The Second Ohio has 13 men in the regimental hospital regularly cared for by 2 men permanently and 4 men detailed day by day. The Fourteenth Minnesota has 5 in its regimental hospital, several of whom are quite ill, 1 being a typhoid fever case which there is no pretense of sending to the division hospital. In the Thirty-first Michigan 10 cases are being treated in the regimental hospital, which is evidently a fixed arrangement, and there is great unwillingness to send men to the division hospital. On the other hand, I questioned a man (Private Dyer, Company F) who had been sent to the division hospital 29th of July, but was not admitted. There was serious complaint as to the detaching of medical officers and noncommissioned officers and the employment of such men of high social and scholastic standing on menial duty—for example C. O. Ryan, I Company.

Regimental hospital, First Georgia, was equipped at Griffin partly by the Surgeon-General and partly by private means. The Fifth Illinois claims great difficulty in discharging men for disability, and has now a dangerous epileptic (David D. Edwards, Company A), who is a menace, but whose discharge has long been delayed.

Hospital Second Division, First Corps.—This contains 150 beds, but has 173 patients present. More cots have been sent for. There are 6 medical officers, 1 line officer as quartermaster and acting commissary subsistence, 5 stewards, and 30 privates. Occasionally individual nurses are sent for special cases from the regiment. The tents are too crowded—8 men each—and the tent police is not good. There were 20 cases there fit for a general hospital which could not be sent without orders. A greater capacity is much needed. There were 11 tents in possession not erected. The washing is done by contract, and the clothing disinfected, but not boiled. The hospital fund is \$33. There is no money from private funds. The Red Cross sends daily 200 pounds of ice, 10 gallons of milk; 4 chickens

weekly; eggs and lemons irregularly. Pajamas and night shirts are furnished by benevolent societies. There have been 586 patients all told, with 4 deaths (1 accidental, 1 from cerebral hemorrhage, 1 when a patient had been under treatment for typhoid fever for ten days in his regiment). Forty-two cases have been sent to the general hospital. There was serious complaint that the supplies were defective in strychnia, nux vomica, belladonna, opium (except camphor and opium and dovers powder), and the liquid preparations of opium and deodorized opium are much desired. There was no ophthalmoscope or no rectal speculum available. The diagnoses were not well kept in the register, little correction being made in the original ones sent from the regiments; but a distinction was drawn between "enteric" and "typhoid" fevers, with the claim that they are distinct.

Third Division, First Corps.—The Twelfth Minnesota, with a constant sick rate of 13 per cent, claims great difficulty in getting lime and vessels for boiling water. The Fifth Pennsylvania has a sick report of 11 per cent, with many typhoid cases. The police is not good and sickness is increasing. It is said that the quartermaster department declined to supply vessels and barrels for water, but boiling has begun lately. The sinks were infected and no disinfectant allowed. (This is the regiment already reported as being overflowed by its sinks.) Medicines have been very difficult to procure. It was supposed that they were "held in reserve." Consequently they have been purchased, and strychnia, which could not be had on requisition, was finally bought by direct authority of the Surgeon-General. The Eighth Massachusetts, whose discipline is good and which boils its water, has a sick rate of 2.56 although its camp site is bad. The Twelfth New York, in the same brigade, has a rate of 8.5, rapidly increasing, of which 95 per cent is believed to be typhoid. The regimental hospital has 19 cases. The regimental fund equipped the hospital and the medicine and food are supplied by charity. The Ninth Pennsylvania has a sick rate of 13 per cent. It brought 2 cases of typhoid fever into camp and has had nearly 100 altogether. It has 80 cases in general hospital and 30 in division hospital, which declines to receive more. In the regimental hospital are 28 men with detailed nurses, and there are reported by the surgeon a number of cases in the camp in quarters (tents) with high temperature. The Second Missouri has no field desk, and its reports of sick and wounded have been returned for quite unnecessary corrections. There are 15 men in the regimental hospital, which is floored and furnished by private means. There is the perfectly just complaint that no whisky and other necessary medicines can be had for the men who have been permitted, whether necessary or not, to be treated in camp. The First New Hampshire has more than 70 men under treatment in quarters, besides 25 on sick report on light duty and 25 in the division hospital. It has 20 typhoid cases, the first occurring about six weeks ago. The regimental surgeon reports 18 or 20 fit for the division hospital and many men in camp unable to attend sick call and who must be visited. There is also the repeated complaint of the difficulty of obtaining discharges.

Hospital, Third Division, First Corps.—This has 5 medical officers, 1 line officer, 8 regimental stewards, 89 privates, including 18 sick. Forty of these men are employed as nurses, but as they are untrained their value is small. Twenty-four of the detachment were transferred voluntarily and are good, but the Hospital Corps recruits are very poor as received. The nurses go on in two reliefs of twelve hours each, and special nurses are also obtained from the regiments for particular cases as required. There is also a daily regimental detail of 15 men. The capacity of the hospital is 30 tents with 206 beds, leaving 7 tents and 50 beds not pitched. The hospital is not brigaded. To the 10th of July there were 658 cases, and 26 deaths, chiefly from typhoid. Some cases appear to be delayed in reaching hospital, and the Second Missouri was cited as a regiment that preferred to treat its sick in camp. Some of the tents were crowded with 8 beds and others contained 6. The typhoid cases are not kept in distinct wards, but are mingled among the others. The police is fair, and the patients' clothing, wrapped in a poncho, is kept under their respective beds. The stools are disinfected with the bichloride and the clothing is washed by a woman living near, after chemical disinfection. The clothing is not boiled in camp. The hospital ground is small but the drainage is good. Fifteen barrels of water from the park spring are received daily. The water is boiled and partly filtered. Major Clark, Twelfth Minnesota, is in charge, and all the medical officers are regimental, who desire to rejoin their regiments when the command moves. Their present detached condition is resented by the line officers. It was not thus noted on the spot, but it is believed that this hospital, in common with the others, is largely dependent on the Red Cross and similar voluntary associations for support. The defects reported by the officers concerned are as follows: The Myers stove is inferior to the Buzzacott oven,

because it soon fills with ashes and requires specially short wood. But a single coffee mill was available, and it ground badly. Salol and other necessary medicines require to be bought. The medical field supply was pronounced insufficient and inappropriate for the climate. Some articles were in excess, but the most are deficient. The quinine is insufficient for the conditions, and there should be more condensed food, as beef and milk; and malted milk, which was spoken of very highly, was desired. It was charged that the needle holder broke the curved needles very easily, so that four were destroyed in an operation recently.

Besides these organized hospitals there are four others necessarily required. The cavalry and artillery brigades, each practically independent commands, have no reserve hospital, but care for their sick regimentally—namely, the Third United States Volunteer Cavalry, the First Illinois Cavalry, and the various batteries together. There is also a small hospital for the troops and others directly attached to headquarters.

Third United States Volunteer Cavalry has a sick report of 16.47 per cent., which is increasing. The first recognized typhoid fever case occurred in the previous week, and five were sent to the general hospital. There is reason to suppose, however, that a case now convalescent is actually one of that disease. There were 375 cases to July, but the July record was not yet entered. There are now 20 in the regimental hospital, chiefly remittent, and 139 in quarters. This regiment had just changed its camp to a new site, but its old one from want of police had been an offense to all who observed it.

The First Illinois Cavalry lying by the side of the last, also having just changed camp, has a sick report of 3.8 per cent. The regiment has been in the park since the 1st of June, and typhoid fever commenced about eighteen days ago, since which time there have been 5 cases. There were 19 cases in hospital, chiefly remittent and 29 in quarters. The hospital, which is regimental property of a unique pattern given by friends, was very neat and well kept.

The artillery brigade of seven batteries has a sick rate of 8 per cent, but unequally distributed, the most of the cases being in the Georgians. The hospital tents are of a somewhat larger pattern than the present regulation, but are neatly floored and contain six beds each. All the hospital water is boiled and filtered, but this is difficult of general application. It was complained that the Myers quinine was insoluble.

The headquarters sick report showed a rate of 2.8 per cent. The hospital was neat and the patients few.

Besides these conditions, chiefly physical, affecting the men, there are others that disturb the medical officers and are discouraging them. Excepting a very few regulars scattered among them, all of these volunteer officers, although filled with a laudable desire to do their best, are in an unaccustomed atmosphere, and what is plain to men of long experience is obscure to them. The stated reports, the requisitions, the certificates for discharge have given great trouble and have consumed time, often ineffectually, that might be otherwise occupied. Until very recently there have been two heads of corps and a chief surgeon superior to both, and the methods used do not appear to be uniform. One of the effects has been to cause great delay in the distribution of supplies, and, wherever the fault, there has certainly been great inconvenience to all concerned. There has been also not only delay, but, regardless of theory, deficiency which has been real and prejudicial. This matter of supply I touch with diffidence, as not coming strictly within the scope of my orders, and yet both it and administration have a marked bearing on the sanitary condition of the men. It is clear to me that filters, if they were to be used, were withheld too long and are insufficient in number; that the field desks for convenience of administration, and in view of their contents necessary for it, were not supplied in time (all have not yet been issued); the field chests have reached the most of the regiments only very recently; the standard allowance for a "brigade or division field hospital," one of which is normally three times the size of the other, is grossly inadequate under the conditions of a permanent camp such as this, that contains numerous and very serious fever cases; and, however it may come about, the hospital supplies are not replenished with freedom and dispatch.

Stated briefly, the troops at Camp Thomas are suffering not from special infection of water or from peculiarly malarious conditions of locality, although the latter will increase with the advancing season, but with the inevitable results of crowd poisoning, soil pollution, insufficient water, insufficient and imperfect shelter, a very great lack of facilities for the disposal of refuse, and the indirect consequences of ignorance in camp sanitation on the part of practically all the men and nearly all the officers. The regiments are very large and the medical staff, besides being almost entirely inexperienced, is too small in numbers. Much

of the time of all of them is occupied with preparing, correcting, revising and completing papers with which very few are familiar. The methods of getting supplies, of discharging the unfit, of accounting for persons are strange, and they naturally are discouraged. I think every medical officer in the camp is overworked, and some of them severely.

Added to all this, the hospital accommodation has been exceedingly inadequate. For a camp of more than 40,000 new troops—I exclude those that have been detached—there are four division hospitals, with an aggregate capacity of 850 beds in which to treat every case not fit to remain in his own tent, or about 2 per cent of the gross amount. Added to this is a neighboring general hospital of nominally 255 beds, whose normal capacity is not more than 130, which has been overcrowded from its opening. The consequence has been that the camps are dotted all over with a vicious system of regimental hospitals not recognized, and properly not recognized, by orders, but tolerated as a makeshift. In a camp of this kind, filled with raw, poorly selected troops, 300 should have been the minimum for each division hospital, with the ability to increase to twice that number without delay, or large, well-appointed, easily accessible general hospitals should have been at hand. The eruptive diseases always ravage new rural commands, diarrheal diseases of varying intensity furnish their contingent for hospitals, typhoid fever should constantly be apprehended, and the malarious diseases, as the season advances, will add to the cases. For these reasons there should be a surplus rather than a deficiency of canvas.

My orders do not call for recommendations, but, under the verbal instructions of the Secretary of War to make such immediately on the more pressing points, which I have done already in a brief preliminary paper, I add, to complete this section of this report, that in my judgment rules to this effect should be applied to the troops at Chickamauga Park, and, *mutatis mutandis*, the same applies to all similar large commands:

(1) Every regiment (of new troops) that has occupied its present site more than thirty days should be moved.

(2) Wooden floors, to be movable within camp limits and to stand at least 4 inches above the ground, should be supplied all tents.

(3) All leaky canvas should be replaced.

(4) In a camp of this kind the occupancy of a common tent should be limited to 3 and of a conical wall tent to 10 men.

(5) All tents should have an area equal to their own base of free ground between them and the adjacent tents, and to and from this fresh ground they should be moved every week or ten days.

(6) At Camp Thomas quicklime should be very freely furnished for disinfection, although the rainy weather will make storage and transportation difficult.

(7) Facilities for boiling the drinking water and for storing it in barrels should be given each regiment at Camp Thomas.

(8) Crematories for all combustible refuse should always be supplied to each division of a permanent camp when such refuse can not be otherwise consumed. Much of the existing waste at Chickamauga should be burned by the park commission.

(9) Practice marches over short distances and of short duration should be put into operation for the Camp Thomas troops. These can not be made too long, because nearly all the regiments are charged with typhoid fever, and for the next ten days or fortnight new cases already infected will appear.

(10) It would probably be better to remove the Third United States Volunteer Cavalry (Grigsby's) altogether, although arrangements must be made to care for its present sick and those taken on the way.

(11) The division hospitals should be increased by one-half at least; the camp hospital about to be established be put into immediate operation, and the regimental hospitals be absolutely and incontinently abolished as soon as this new canvas is ready.

(12) A medical officer of experience, discretion, and energy should be attached temporarily to those headquarters, whose sole duty it should be to examine men presented for discharge, to prepare the certificates, and get them before the commanding general with the least possible delay. He should visit the various regiments and hospitals for this purpose, act independently of existing boards, and trouble the chief surgeon of the camp with them only for the purposes of record. There are many such cases to be acted on whose consideration occupies much time of the chief surgeon that might be more profitably employed, and the presence of the unfit men in the commands is harmful.

I also inspected the sanitary condition of the Leiter general hospital, as required by my orders. The building is that formerly known as the Park Hotel, and at

the time of my visit, July 31, its capacity was reckoned as for 255 patients. On that date there were 19 vacant beds. The hospital is commanded by Maj. E. C. Carter, who is his own executive officer, quartermaster, and subsistence officer. His medical staff consists of Major Bayne, United States Volunteers, and 5 contract surgeons. He has 2 stewards, 1 acting steward, and 30 privates, Hospital Corps, including 2 absent and 3 present sick. There are 30 female contract nurses, 10 Red Cross nurses, and 2 excellent volunteer nurses. Half of the Hospital Corps are on nursing duty. There are 10 authorized civil laborers, among whom are 4 vacancies. There are three large rooms on the lower floor, formerly the dining, reading, and billiard rooms, and a detached dancing pavilion in the grounds. There are also a number of small chambers on the second floor, a number of beds not occupied at the time stand in the second story hall, and 30 convalescents sleep on the veranda. Two wards of 16 tents in all, each to contain 5 beds, a total of 80 beds, are in the grounds as yet unequipped.

All the large rooms are greatly overcrowded, the detached pavilion alone giving no odor. It has abundant eaves ventilation and tolerable cubic capacity. The floor space in these rooms is 46.5, 58, 59, and 65 square feet, respectively, and all but the reading room have four rows of beds, the ends of those in the central rows being in contact. There is very little working space, the floors in the nature of the case can not be kept clean, and, in general terms, these rooms contain twice as many patients as they should, for there are practically no vacant beds and the cases are all serious. None of these rooms has immediate closet facilities, and the discharges from the dining room and reading room have to be carried through the lower part of the building to the closets adjacent to the billiard room. The floor of this ward is below the level of the surrounding earth. There is a basement water-closet now undergoing repair, in which 4 closets and 2 urinals were about to be introduced. The walls of the first floor are dirty throughout and require kalsomining. In the upper story the rooms have too many patients, considering their character. The walls here are clean. There are water-closets on the halls of this floor.

I am told that when the hospital was first occupied the sewer was occluded for a considerable distance, that the sewage debouched so that ultimately it might have polluted the Chickamauga Creek, and that the closets within the house were untrapped. Manholes have since been introduced, a masonry basin, discharging the fluid contents automatically, and from which the solid residuum is removed by hand, receives the sewage and protects the river. The closets are now all trapped, and the building appears to be properly protected in that direction. In one outhouse closet, when inspected, insoluble waste was found in the bowl, and the apparatus was temporarily disarranged. The rain-water leaders discharge into the sewer, and the pipe for flushing the sewer proceeds from the base of the tank that supplies the house with water.

The water is drawn from the adjacent Crawfish Spring, whose flow is estimated at 60,000,000 gallons per diem. To the eye that seems an exaggeration. The tank and the engine belonging to the hotel proved insufficient, and a 30-horsepower engine, furnishing 3,000 gallons an hour, has been in operation since June 25, and a new tank of sufficient capacity is in process of erection. The spring is essentially a pond, somewhat liable to contamination, although there is no direct evidence thereof. Distilled water has been offered by a trustworthy company in Chattanooga at 2½ cents per gallon.

Besides the hospital fund there has been spontaneously sent \$240 from private sources, which has been spent chiefly for cows and food. Many gifts have been sent and offered, including one of a carload of milch cows from some one in Chicago. The slowness by which certain wants are supplied through the regular channels has made such extraneous aid very acceptable.

The hospital corps is not only ill disciplined, but is very poorly clothed. The female nurses are said to be efficient.

To the end of July there had been 350 admissions to the hospital, all from the neighboring camp, and 80 per cent of the cases were of typhoid fever. It had happened that the place has been overstocked, as when 30 patients were sent to fill 20 vacancies.

There is no guard for the public property, such an application having been refused. One noncommissioned officer permanently detailed and 1 private by roster act as watchmen. There is no stable for 10 head of stock that are herded.

The commanding officer expresses a desire for a line officer to act as quartermaster and commissary; he wishes more and better clerks; he desires an executive officer; he would prefer half of his contract surgeons to be more experienced men.

According to my observation the hospital is well managed. It is, however, *sadly overcrowded*. In my judgment the buildings should not contain more than

130 beds. It is possible to put up in the grounds 4 more groups of 40-bed wards, making 240 under canvas, or 370 beds in all. Perhaps room could be found for 400, but the kitchen and other administrative facilities would be strained. The lower story should be thoroughly kalsomined, the floors carefully cleaned, and in the unventilated large rooms some of the simpler forms of ventilation by tubes be introduced. In one of those rooms there are electric fans, but their chief value is to stir up the air, not to replace it.

As a whole, the sanitary condition about Chickamauga Park is not good, owing to preventable conditions, and I believe that measures similar to those herein suggested should be carried out.

REPORT ON THE OUTBREAK OF TYPHOID IN CAMPS AT JACKSONVILLE, FLA., BY
LIEUT. COL. L. M. MAUS, UNITED STATES VOLUNTEERS, CHIEF SURGEON SEVENTH ARMY CORPS.

[Dated August 22, 1898.]

I have the honor to state that we have quite a large number of cases of typhoid fever undergoing treatment in the three division hospitals of this corps. A large number of these cases, in my opinion, resulted from the use of infected water in the various State camps from which regiments were sent. I am, however, of the opinion that a great many of them originated around and about Jacksonville also. The water system of Jacksonville is artesian, and may be regarded as excellent. It is saturated with sulphureted hydrogen when coming to the earth's surface, but this gas soon evaporates, leaving the water very pleasant to drink. Unfortunately, around the suburbs of Jacksonville are a large number of surface and driven wells. Many of these wells are but from 18 to 20 feet deep, and are located close to the habitations of the people who use this water. The soldiers going out on drills and target practice, etc., frequently, I have been informed, use water from these wells. I believe that this may account for a great many of the infected cases. Then, again, the milkmen who live in the suburbs rinse their cans in this water, and at times leave some in the cans, which mixes with the milk, and this probably is productive of typhoid infection.

One company of the First Wisconsin has suffered considerably from typhoid. This company was located on the main street, over which was hauled the fecal matter by the scavengers at night. It is believed that a good deal of the fecal matter splashed out on the road and was absorbed by these men, who were sleeping near by, through the medium of the dust, which probably was infected. The First Wisconsin has suffered more than any other regiment here in regard to the number of typhoid cases.

Of course a great many cases would naturally occur in a Southern climate, because, in my experience, I have always found that men sent South in midsummer are liable to become enervated and more susceptible to fevers than the natives. A part of these cases were of a very malignant type and proved to be fatal. Autopsies, as a rule, have been made and exposed ulcerations and perforations in some cases.

One company of the Second Illinois ate on the 29th of May a lot of tainted meat, and within ten days or two weeks thereafter a large number of cases of typhoid fever appeared in that company. It would seem as if the ptomaine poisoning in some way made these men susceptible to the typhoid poisoning. This company enjoyed the same surroundings as the others, and there is no way to account for this large number of typhoid-fever cases except in the way indicated. I will also state that many of these men were quite ill for a week or ten days after eating this meat, suffering from gastrointestinal irritation.

The regiments of the Second Division have been removed to fresh camping grounds, and everyone is more keenly alive to the necessity of looking after the sanitary condition. Of course, medical officers can not accomplish all that is necessary single-handed, and it is very difficult at times to have their suggestions carried out by those in command.

I have recommended to the corps commander that small pavilion hospitals, made out of rough lumber, be constructed near each division hospital, with a capacity of 100 beds, for the treatment of the serious typhoid cases. I desire that these men shall receive every care, and for this reason have asked that these buildings be constructed, so that they can get regular hospital treatment. I also believe it for the best interests of the service that we should have a number of trained female nurses, as well as male nurses, to care for these cases. It is very likely that we will have more fever cases during the month of September than at

present, as that is the most sickly season of the year here, and I wish to prepare for any emergency. I, therefore, would like to have at least 50 well-trained female nurses sent here within the next week, and hope that Dr. Brien, who has gone North to get male trained nurses, will be successful in getting 100 of them.

I intend to make requisitions for bath tubs on wheels, in order to give them the tubbing process, because I believe that better results can be obtained from that method of treatment than any other. It is almost impossible to give patients tub treatment in hospital tents, especially when there are six or more patients in each one. I am glad to say that we are getting along here very nicely. Barring the large number of typhoid-fever cases, we have practically very few sick men.

The three division hospitals have been in operation for a long time and seem to have given general satisfaction. It is not to be expected that everybody will be satisfied, and hence there has been a good deal of criticism from various sources, emanating from women and others who are not capable of appreciating the difficulty of caring for the sick in the field. I believe our division hospitals are far ahead in every way of what was contemplated in the original orders by the War Department. I have had furnished to the hospital, in addition to what is supplied by the Government, pajamas, nightshirts, sheets, mattresses, pillows, electric fans, foods of all sorts; in fact, hundreds of dollars have been spent on the division hospitals of this corps in addition to what was allowed by the Government.

I wish to thank you for your generous support in granting me everything that I have asked for. I wish to state that nothing of any moment has been refused me that I have asked you in regard to providing for the sick of this corps.

REPORT OF THE CHIEF SURGEON OF THE FIFTH ARMY CORPS, GIVING A BRIEF ACCOUNT OF THE OPERATIONS OF THE MEDICAL DEPARTMENT FROM APRIL 23, 1898, TO JULY 23, 1898, BY LIEUT. COL. B. F. POPE, CHIEF SURGEON, UNITED STATES VOLUNTEERS.

In compliance with telegraphic instructions from the Secretary of War, dated April 16, 1898, I proceeded on the 19th day of April with the Seventeenth United States Infantry from Columbus Barracks, Ohio, to Tampa, Fla., arriving there about the 21st of April. This organization, and a number of other regiments rapidly following, were placed in camp on Tampa Heights, an elevated plateau, about 2 miles from the center of town. The ground was apparently well adapted for camping purposes, being a sandy loam, subsoil water, at that time about 13 feet from the surface. There was good shade from pine trees and scrub oaks. The water supply from the city reservoir was delivered by hydrants through 8-inch mains. The quality was good and the quantity ample for all purposes of men and animals.

Within the next few days there were gathered the following regiments of infantry, which went to form what was later known as the "Second Independent Division:" The Sixth, Tenth, Twenty-first, Thirteenth, Ninth, Twenty-fourth, Twenty-fifth, Twenty-second, Seventeenth, and the Fourth, to which was later added the Eighth, Sixteenth, Twelfth, Seventh, and Second United States Infantry, these latter regiments forming a camp below the Tampa Bay Hotel.

On the 23d of April, by the operation of General Order, No. 3, as senior medical officer of the command I was announced chief surgeon, and reported to the commander, Brigadier-General Wade, accordingly.

With the approval of the general commanding, Maj. Henry S. Kilbourne, surgeon, and Capt. William F. Stephenson, assistant surgeon, were announced as chief surgeons of brigade; and later, as the number of commands increased and the organization of the Fifth Army Corps was completed, the following chief medical officers were designated:

Lieut. Col. B. F. Pope, chief surgeon, United States Volunteers, chief surgeon of the corps; Maj. Valery Havard, chief surgeon of the cavalry division; Maj. Henry S. Kilbourne, chief surgeon of the Second Division; Maj. M. W. Wood, chief surgeon of the First Division; Maj. F. J. Ives, brigade surgeon, United States Volunteers, as chief of General Bates's independent division.

With a view to ascertain the amount of supplies on hand, I at once proceeded to obtain from medical officers accompanying the command a list of such medical and surgical stores and instruments, tents, ambulances, public animals, etc., as they had brought with them from their stations, directing them at the same time to make requisition for such supplies as they might need, forwarding the same to the chief surgeon. A consolidated list of these memoranda, prepared for future reference, was left with the acting medical supply officer at Tampa, Fla., and is not now accessible.

It was found that while nearly all of the regiments had brought with them their medical and surgical chests, field cases of instruments, and camp outfit of mess chests, food chests, etc., there were many regiments which were lacking in surgical dressings and medicines, and most of them in transportation for such supplies as they had brought.

For this reason on April 27 I telegraphed the following to the Surgeon-General:

"Please have forwarded by express 8 pack saddles complete for medical and surgical chests, 10,000 first-aid packages, 1,000 rolls wire splints, 100 rolls of adhesive plaster, 1,000 rolls of cotton batting, 1,000 yards of absorbent gauze, 100 bottles of sterilized catgut, 1,000 packages of absorbent cotton, 500 grams of silk ligature, 500 packages of sheet lint, 50 dozen towels, 50 pounds of soda sulphate, 10 Arnold sterilizers, 60 yards of rubber sheeting, 10 yards of rubber drainage tube, 3 sheets of rubber intestinal cylinders, 100 boxes of roller bandages, and 300 tubes of vaccine virus."

In reply to my telegram, I was informed that the supply of antiseptic dressings, according to list selected by the Surgeon-General, was being made up and would be forwarded shortly, and later some 20 boxes of surgical dressings were received at Tampa, which were issued to the various regimental surgeons as they arrived. These boxes were complete and in every respect fitted for antiseptic surgical work.

The arrival of the cavalry commands and the batteries of light artillery rapidly followed, and their camps were located partly at Port Tampa, near Tampa Bay Hotel, and some at Lakeland. The supplies brought with the cavalry commands were ample in every respect, both in medical and hospital material, tentage, and ambulances. The batteries of light artillery were practically destitute of hospital tentage, and several of them of medical and surgical chests, the batteries from the Pacific coast being best equipped.

The vaccination of troops began early in May and was continued without interruption until the protection of the whole command was assured.

Field hospitals.—The establishment of field hospitals other than regimental early occupied the attention of the chief surgeon, although he was informed that it was the desire of the War Department that the regimental system should remain intact, it being the intention to have 1 medical officer of the Army with each regiment of infantry, 1 steward or acting steward, 10 privates of the Hospital Corps, tents, field furniture for a field hospital to accommodate 10 patients, and field supplies for three months. (See letter Surgeon-General's Office, April 20, 1898.)

With a view to the establishment of a divisional rather than a regimental system of hospitals, I succeeded in having the following orders promulgated by the commanding general:

[Special Orders, No. 2.—Extract.]

HEADQUARTERS UNITED STATES FORCES,
Tampa, Fla., May 3, 1898.

2. A field hospital for the troops at Port Tampa will be located on convenient ground adjacent to the camps of the two commands now at that point.

Major La Garde, surgeon, is relieved from duty with the Ninth Cavalry, and will establish the hospital above indicated. His assistants will be designated in further instructions. In addition to his duties as commanding officer of the hospital, Surgeon La Garde, as senior medical officer present, will have general supervision of the medical officers with the cavalry and light artillery at Port Tampa, Fla. He will report to the chief surgeon at these headquarters for further instruction in regard to his duties.

By command of General Shafter:

J. B. BABCOCK,
Assistant Adjutant-General.

HEADQUARTERS UNITED STATES FORCES,
Tampa, Fla., May 3, 1898.

The COMMANDING GENERAL,
Infantry Division, United States Forces, Tampa, Fla.

SIR: The commanding general desires that a division field hospital be established in your command at Tampa Heights. The chief surgeon at these headquarters has been directed to designate to you from the medical officers of your command the commanding officer of the hospital and his assistants.

Very respectfully,

J. B. BABCOCK,
Assistant Adjutant-General.

To regulate the formation of these hospitals and the transfer of regimental hospital equipment and personnel, the commanding general issued instructions which were afterwards promulgated in the general orders following.

[General Orders, No. 14.]

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., June, 6, 1898.

The chief surgeon of the Fifth Army Corps will assign for division hospital and ambulance train service such members of the Hospital Corps detachments, tentage, ambulances and wagons, animals and their equipments, hospital and medical supplies and field equipments, as may be required and designate the medical officer to receipt for the same.

A minimum allowance to be retained with each regiment will be as follows:

One acting hospital steward and 1 private, 1 hospital and 1 common tent, 1 ambulance and necessary animals fully equipped in order to preserve the regimental organization.

Officers detached for duty at division hospitals are authorized to take with them their allowance of tentage, giving receipt for the same.

Whenever necessary, the chief surgeon is authorized to take any or all ambulances assigned to regiments for temporary use of the field hospitals.

The commanding general also authorizes the chief surgeon to instruct chief surgeons of divisions to make transfer for temporary service with field hospitals, ambulance trains, dressing stations, or regiments, of such regimental medical officers, members of the Hospital Corps, ambulances and medical or hospital supplies at any time when such action becomes necessary for the proper care of the sick or injured under their charge.

By command of Major-General Shafter:

E. J. McCLEARNAND,
Assistant Adjutant-General.

Under the operation of these orders the formation of four field divisional hospitals was begun, the preliminary steps being to gradually enlarge the regimental field hospital of the Ninth Cavalry under Major La Garde, surgeon; that of the Thirteenth Infantry under Maj. A. H. Appel, surgeon; later the regimental hospital of the Sixth United States Cavalry under Major McCreery, surgeon; and lastly, that of the First Division under Maj. M. W. Wood, surgeon. This latter hospital was formed too late to open for the reception of patients before the embarkation, but after the landing of troops at Siboney it became the advanced field hospital and nearest the line of action at San Juan Hill, near Santiago de Cuba. The gradual absorption of regimental hospitals went on until Major La Garde's hospital was expanded and equipped to accommodate nearly 150 patients; that of Major Appel, 150; and that of Major McCreery, for the cavalry division, about 65 patients. Later the hospital of the Twenty-second Infantry was moved to Jacksonville, Fla., where it became the nucleus of the field hospital of the Seventh Army Corps.

The equipment of the second divisional hospital under Major Appel was made complete at an early date. It contained about 85 cots, a sufficient outfit of furniture and messing fixtures. The operating tent was well supplied with enameled steel folding operating tables, steam sterilizers, and water heaters; a bathing tent, bath tubs, wash basins, and other extra appliances were purchased under authority of the Surgeon-General. As the demands for space increased additional tentage was received by Major Appel until the capacity was increased to nearly 180 patients.

The personnel consisted of Maj. A. H. Appel, surgeon, in command; Asst. Surgs. Deane C. Howard, and L. P. Smith, United States Army; Acting Asst. Surgs. W. E. Parker and U. S. Bird, United States Army, as assistants. There also was allotted a detachment of acting stewards (number not recollected) and about 35 privates of the Hospital Corps.

The hospital at Port Tampa, known as the reserve or divisional hospital No. 3, was about the same size and similarly equipped; Maj. Louis A. La Garde, surgeon, in command, Asst. Surgs. M. W. Ireland, H. A. Shaw, James M. Kennedy, and later Asst. Surg. P. C. Fauntleroy. I am unable to recollect the number of hospital stewards, but the Hospital Corps detachment numbered some 37 privates and noncommissioned officers.

The tentage was received partly from the various commands centered at Port Tampa and partly from the depot quartermaster at Tampa on requisitions approved by the chief surgeon.

Divisional hospital No. 1, under command of Maj. M. W. Wood, surgeon, was formed late in the month of May, and much difficulty was experienced by that officer in securing an adequate amount of tentage and furniture, the regimental supply being nearly exhausted by drafts made for the other hospitals. A special

requisition for 30 hospital tents was made by the chief surgeon and approved by the general commanding. On receipt from the depot quartermaster a very large number were found to be unserviceable from lack of guy ropes and former wear, so that the second divisional hospital was drawn upon to assist the equipment of No. 1. Major Wood's surgical outfit proved later to be an admirable one, the supply of instruments, dressings, sterilizers, and tables sufficing to meet the great strain put upon it by the battles of July 1 and 2, 1898.

The personnel of this hospital consisted of Maj. M. W. Wood, surgeon, in command; Maj. R. W. Johnson, surgeon, United States Volunteers; Asst. Surg. G. C. M. Godfrey; Acting Asst. Surgs. Hamilton P. Jones and F. J. Combe. Later Acting Asst. Surg. T. H. Marshall, United States Army, was attached to the hospital.

Ambulance trains.—With the formation of the several field hospitals came the simultaneous formation of two ambulance trains. That at Port Tampa was made up by drawing in ambulances from the Ninth Cavalry and the several artillery commands adjacent, also by requisition upon the depot quartermaster. Mules were received later and harness last of all. The train was placed under the command of First Lieut. J. M. Kennedy, assistant surgeon, and although left behind for lack of transportation on embarkation of the Fifth Army Corps a part of it was forwarded in time to render most valuable service in the campaign against Santiago de Cuba.

The train of the second divisional hospital consisted of some seven ambulances. While its formation was completed prior to embarkation, it also was left behind with a portion of the hospital at Tampa Heights, for lack of transport room.

The first divisional hospital had a few ambulances, which were left behind on embarkation. Three ambulances which had been taken apart and stored on one of the transports were later assigned to this hospital and became of much service under charge of Assistant Surgeon Godfrey in removing wounded from the field at San Juan Hill and El Caney.

Wagon transportation.—To every hospital it was designed to assign a sufficient number of 4 and 6 mule wagons to haul all of the tentage and supplies. For this purpose the second and third divisional hospitals had about eight wagons each, with a complete equipment of mules and civilian drivers. I can not recollect how many were with the First Division or the cavalry command under Major Havard. At all events they were all left behind on embarkation and never seen again by the medical department of the Fifth Army Corps.

Hospital Corps companies.—The next step in organization of the medical department of the corps was the formation of Hospital Corps companies, which was authorized by the commanding general in the following general orders:

General Orders, No. 3 (new series).

HEADQUARTERS FIFTH ARMY CORPS, *Tampa, Fla., May 29, 1898.*

Upon recommendation of the chief surgeon, the following will be the organization of the members of the Hospital Corps now on duty with or hereafter attached to the Fifth Army Corps.

There will be three companies which are to be known as Hospital Corps companies and all of them under the control of the chief surgeon of the corps.

Each company will be commanded by an officer of the Medical Department, selected for that purpose by the chief surgeon, and to these companies will be transferred all Hospital Corps privates, hospital stewards, and acting hospital stewards, except the following, who are retained with the several commands to which they are now attached:

To every regiment of infantry, 1 acting steward and 1 private as orderly. To every regiment of cavalry, 2 acting stewards and 2 privates as orderlies for medical officers. To every battalion of artillery, three batteries each, 3 acting hospital stewards and 3 privates.

Descriptive lists will be prepared and forwarded to the officers designated by the chief surgeon, and later invoices for the Hospital Corps, quartermaster, and ordnance department equipments for each Hospital Corps man.

Receipts will be given by the commanders of the several Hospital Corps companies for the property transferred.

According to the necessities of each organization, as represented by their medical officers, details from the Hospital Corps companies will be made by the chief surgeons of division for temporary duty with the several commands, which detail will terminate at any time at discretion of the chief surgeon of the corps.

By command of Major-General Shafter:

FRED. A. SMITH,
Captain, Twelfth Infantry, Acting Assistant Adjutant-General.

The work of organizing the first of these companies was assigned to Capt. E. L. Munson, assistant surgeon, who was attached to the office of the chief surgeon for that purpose, and also to act as his executive office. But before the necessary books and blanks could be obtained and the transfers made, the embarkation of the corps took place, and the work was indefinitely postponed. It was the intention of the chief surgeon to draw into these divisional companies all of the Hospital Corps men, so as to have them entirely under the control of the medical department and not subject to the control of regimental commanders. In case of necessity the number of Hospital Corps men could be increased with any command or be drawn from other commands by mere detail without the intervention of higher authority than the division surgeon, who would be the best judge of the needs of his troops in any given emergency. To give effective working to the plan a company of at least 104 enlisted men would be necessary, exclusive of those employed in divisional hospitals and on regimental service.

Mounts for Hospital Corps privates, etc.—The question of mounts for Hospital Corps men and for acting assistant surgeons was taken up as early as practicable, as there was an almost universal demand on the part of medical officers that the provision of the regulations in this respect should be complied with if possible.

On requisition being made to the depot quartermaster for the necessary animals, it appeared that neither animals nor equipments were on hand, nor were they likely to be unless provided from some other point than Tampa.

On May 11 the Surgeon-General was asked to confer with the Quartermaster-General with view to securing the mounts if possible. This request elicited the information that at Chickamauga there had been some 200 horses purchased for the purpose, and directions were given that efforts be made to locate them in Tampa. On the 15th of May I replied that the 200 Hospital Corps horses could not be located by the quartermaster at that point, but on the 17th of May it was reported to me that the 200 horses had arrived, and I at once directed the preparation of the necessary requisitions, so that they could be distributed according to the requirements of the command. Later instructions were received that only the Hospital Corps men attached to mounted commands should be mounted, the orderlies of medical officers, acting assistant surgeons, and hospital stewards being excluded from the provisions. Saddles and other horse equipments were secured later, after much difficulty. In the meanwhile the horses had been issued by the depot quartermaster as requisitions were made, so that very many of the 200 had been distributed, which furnished a mount for nearly every one of the Hospital Corps privates requiring the same then on duty with the command.

Under date of May 27, and in reply to an inquiry on part of the Surgeon-General, who wished to know the number of horses required, I wired that "according to the scheme published May 20, 1898, from the Surgeon-General's Office, 293 mounts would be required, but according to present assignment about 170."

This closed the incident of mounts for the medical department, so far as the Fifth Army Corps was concerned, as on embarkation of the command they were all left behind for the lack of room on the transports to carry them to Cuba.

NOTE.—The following telegram sent by me is of interest as bearing upon the case: "May 18. Tampa, Fla., to Surgeon-General, Washington, D. C. Authority is requested to provide mounts for all acting assistant surgeons; also for one orderly for every medical officer serving with foot troops. There are more than enough horses for the hospital corps now at this place. We have 167 privates and 29 acting stewards present with the command."

Transfer of sick to Fort McPherson, Atlanta, Ga.—In reply to inquiry in regard to the disposition of patients who might be too ill to accompany the command in case of embarkation, the Surgeon-General wired the following under date of May 2, 1898: "Men too sick to go with command should be sent to hospital at Fort McPherson, Atlanta, Ga."

In compliance with these instructions I proceeded, about May 11, to gather from the several field hospitals a number of men in whose cases there was no prospect of early return to duty. Many of them were venereal bubos, which unfitted the men for marching and made them a burden upon the medical department. Others were convalescent from typhoid fever of a mild type, rheumatism, etc. Cases of measles and severe typhoid were not forwarded. A small detachment of Hospital Corps men accompanied them, and they were supplied with food and medicines for three days. Necessary amount of hospital fund to purchase delicacies for the trip was directed to be turned over to the Hospital Corps man in charge. The party, I was informed, arrived safely.

About two weeks later a second party was fitted out, numbering some 34 patients, and placed in charge of Assistant Surgeon Woodson, United States Army, and 3 Hospital Corps men as nurses. All reported as arriving safely.

About this date the chief surgeon recommended that a number of so-called tourist cars be chartered and fitted up for special service in the transfer of patients to the North. As the Plant System and the Southern railways did not have these cars in stock they were difficult to get at the point indicated. After our departure I believe that a regular hospital train was established and run from Tampa and Jacksonville to the northern hospitals.

Medical supplies.—The establishment of a medical-supply depot at Tampa became an early necessity, and, as already stated, a storeroom was secured from the depot quartermaster, where all stores received from New York could be placed and unpacked for issue. A large number of requisitions, forwarded by medical officers on duty with regiments arriving from Chickamauga, were sent to the chief surgeon from Washington with directions that they be filled from stores in the Tampa depot. As other requisitions were coming in the chief surgeon directed the acting medical-supply officer to consolidate all of them, with the view of making a general requisition according to the supply table approved by the Secretary of War under date May 9, 1898. His most pressing needs were wired to the Surgeon-General, as follows:

"May 16, 1898. Surgeon-General, U. S. Army, Washington. Send one medical and surgical chest, a case of surgical instruments, one desk, mess and food chest, commode chest for Engineer Battalion. All of above supplies have been issued to other commands."

"May 17, 1898. Tampa, Fla. The Surgeon-General. Send to me at Tampa 144 cans condensed milk, 180 cans beef extract, 60 cans tea, 300 bottles chloroform, 10,000 first-aid packets."

"Tampa, May 17, 1898. The Surgeon-General. Chloroform and beef extract sent May 9 have been distributed to regiments. The amount requested is for regiments arriving from Chickamauga."

In reply to the above, the chief surgeon received the following telegram:

"Washington, D. C., May 18, 1898. * * * Beef extract and chloroform ordered from New York to-day."

In addition to the above the chief surgeon received information that advance medical chests for issue to troops and other medical supplies had been ordered from New York. But as the stores were late in arriving, and as the demands for medicines continually increased, the chief surgeon wired the following:

"May 25. Tampa, Fla. Surgeon-General, U. S. A., Washington. Authority to purchase medical supplies for volunteer regiments is asked. They have nothing. My supplies are nearly exhausted. Gandy relieves Woodson at medical depot. Send 2,000 vaccine bulbs (for volunteers)."

In reply to the above, two orders were received, one from Col. C. R. Greenleaf, under date of May 26:

"Pope, chief surgeon. Deliver to Admiral Remy at once 300,000 quinine pills. Purchase for daily needs of troops here, until supplied by the Surgeon-General." And another under date of May 28, 1898:

"Gandy, supply officer, Tampa, Fla. Buy medicines absolutely necessary. Ample supplies will be sent in a few days. Sternberg, Surgeon-General."

"Washington, D. C., May 29. One million quinine pills sent to your supply office. Sternberg, Surgeon-General."

Under the above authority purchases in Tampa were commenced, particularly magnesium sulphate, bismuth subnitrate, camphor and opium pills, compound cathartic pills, and other drugs needed to treat the increasing number of those sick from camp diarrhea, dysentery, constipation, and other digestive diseases incident to camp life.

The chloroform and beef extract, also the first-aid packets, arrived promptly, but the other supplies continued to delay. Surgical operating tables put in an appearance and other articles of utility, but it was still necessary to keep up the purchase of drugs, until the city was about stripped.

On June 1 I received the following from the Surgeon-General:

"Washington, D. C., June 1, 1898. Already authorized to purchase supplies for immediate use. Report promptly your needs and any shipment received."

Under date of June 2 I wired the Surgeon-General:

"Tampa, Fla., June 2. Can get no trace of medical supplies here shipped from New York. The depot is nearly empty and the town about stripped. Send 2,000 points vaccine virus to acting medical supply officer by express, as I expect to leave any day on transport."

Under the belief that the supplies thought to have been forwarded from New York were lost en route, I inquired of the depot quartermaster whether duplicate bills of lading had been received. He stated they had not, and wired the shipping quartermaster in New York to send a tracer to hunt up the lost supplies.

On June 2 I wired the Surgeon-General as follows:

"Medicines not yet found. The depot quartermaster at New York must telegraph number of car in which located."

Believing that the freight traffic was almost hopelessly blockaded, as there were at this time nearly 1,500 loaded and unloaded cars standing upon the tracks in Tampa, and as an equally hopeless blockade existed in the Post-Office Department, I wired the following to the Surgeon-General:

"Tampa, Fla., June 4. Order sent by express 200 ounces bismuth subnitrate, 50 ounces of powdered opium, 100 bottles of castor oil, 50 bottles of calomel and soda tablets, 50 bottles of morphine tablets."

So far as I know, the above was not received until after the embarkation of the expedition. But on the 5th of June the stringency was relieved by the arrival of some 200 packages of stores, the receipt of which I acknowledged by wire to the Surgeon-General. The issue of these was begun at once, the field hospitals receiving the first share and next the volunteer regiments who had been lacking sadly in every sort of medical supplies. Then the requisitions were filled with such articles as were on hand. Fortunately the supply of quinine was large enough to meet all possible demands. What was the actual amount and the character of the issues can best be given by Capt. C. M. Gandy, assistant surgeon, who was in charge of the supply depot.

On the 8th of June, at 10 p. m., the chief surgeon received the order for embarkation. The field hospitals had been warned and the medical supply officer directed to set aside one-half of the stores remaining as a reserve stock to be taken with the expedition.

At midnight I entered the medical storeroom and took out two wagon loads of supplies, two more loads being sent down by Captain Gandy to Port Tampa the next morning. The first lot was taken on board the headquarters transport *Sepranica*, and the second on the transport containing the second divisional hospital, under Major Appel, which, I think, was at first the *Comal* and later the *Olivette*.

The embarkation and condition of transports.—The embarkation of the Fifth Army Corps on transports took place on the 9th and 10th of June, at Port Tampa, Fla. The ships were drawn into a long canal, on one side of which trains of cars were run loaded with troops, who rapidly transferred their camp equipage and travel rations to the ships, which then slowly pulled into the larger waters of the bay.

In all there were some 27 transports into which the troops were packed, in lots varying from 700 to 1,300 each. The ships had stands of rough lumber bunks, usually three tiers high, sometimes four, built into the holds and lower and main decks. The packing of these bunks was so close that there was hardly room to pass between them, while in too many instances, with the closure of the hatches, light and air would have been wholly excluded and suffocation quickly result. The transports were originally built for freight and cabin passenger service, and no one of them was properly adapted to the carriage of troops.

Complaints of overcrowding were so numerous and so serious that the commanding general appointed a board of officers, consisting of Brigadier-General Lawton, the chief surgeon, and Captain Mendoza, to inspect the vessels and report which had the greatest number of troops, and how, by redistribution of the men, the trouble might be corrected. And he at once ordered back some 900 recruits that were to have joined their commands on the transports.

The inspection of the board showed that on the *Cherokee*, transport No. 4, there were 40 officers and 972 men, total 1,012, part Seventh Infantry and part Twelfth Infantry. On the lower deck there were 345 men; bunks in three tiers, closely packed; no ventilation or light when the ports were closed. No wind sails for the lower decks. On the main deck there were about 430 bunks and men, two 15-inch openings for ventilators when the main hatch was closed. No wind sail for this deck. On the upper deck 200 men, without protection, and who in case of storm would have to be crowded below. Only two water-closets accommodating 5 men each for the whole outfit. There was about 8,000 gallons of water on hand. No condenser. There was about 9 days' supply in the casks, and in tanks about 4,000 gallons. The board recommended that 200 men be taken from the ship, that water-closet accommodations be increased, and wind sails supplied.

Steamer *Concho*, transport No. 14. Commands, Fourth Infantry, Twenty-fifth Infantry, Third Battalion Second Massachusetts Volunteers. 71 officers and 1,356 men, total 1,327. In the lowest deck, where it was so dark that one could not see 10 feet from the main hatch, it was intended to pack nearly 800 men, the Twenty-fifth Infantry and Second Massachusetts Volunteers. The bunks were in four tiers and crowded so closely that men could hardly pass between them. Ventila-

tion by open hatches and open ports. If these were closed, ventilation would be impossible, as there were no other openings. On the second deck was the Fourth Infantry, 460 men. On the upper deck where the men stayed most of the time there were no bunks or shelter. Of 71 officers crowded into the cabins three were medical officers; Maj. William Stevenson, surgeon United States Volunteers (who was relieved before the ship sailed),* Maj. Paul R. Shillock, surgeon United States Volunteers, of the Twenty-fifth, and Hitchcock of the Second Massachusetts Volunteers. Only one water-closet on board for use of the troops. This was a trough accommodating 10 men only. Additional closets recommended and that the volunteer troops be taken off, which relieved the ship of 13 officers and 306 men. The water capacity was reported at 40,000 gallons, of which 30,000 was on hand. The water was brought from St. Petersburg, Fla., 3,000 gallons per day being used.

Steamer *Leona*, transport No. 21. Command, General Young's Cavalry headquarters, First and Tenth Cavalry, 57 officers, 1,026 enlisted men: The total bunkage said to be 1,046, which I very much doubted. On the lower deck were 230 men, main deck 496, and it was reported that nearly 300 men slept on the upper deck. The ventilation was by deadlights, open port, and open hatches. There were two wind sails, six water-closets. Health of the men excellent. Water storage capacity, 50,000 gallons, but it was not all on hand. No condenser on board. The board found the transport overcrowded by 230 men.

Steamer *Saratoga*, transport No. 20. Command, Thirteenth Infantry and one battalion Twenty-first Infantry, also division hospital No. 3, under Major La Garde, surgeon. Ship carrying 46 officers and 705 enlisted men. The bunks were three-tier, for 2 or 3 men each. On the lowest deck there were no bunks or men. On the main deck, bunks for 568 men. On the upper deck about one-fifth of the men were camped, as there was no room below. The water capacity was about 10,000 gallons; a condenser was on the ship for use if necessary. Ventilation was very bad. As the ship was a freight steamer only, there were no deadlights and but two wind sails where there should have been four. The ends of the main deck were dead spaces into which no air could be forced. The battalion of the Twenty-first Infantry was recommended to be taken off (235 men). There were 10 cases of fever on board and 2 of supposed measles. (These were removed to the *Olivette*.) Water-closets, 3; ample for command.

Steamer *Orizaba*, transport No. 24. Command, Twenty-second Infantry, Siege Artillery, 2 companies heavy artillery, 1 battalion Second Massachusetts Volunteers and 125 mules. Total, 43 officers and 927 men. Lower decks, 300 bunks and no men. Main deck, 300 bunks for 500 men. Upper decks, no bunks, 400 men. Water supply, 39,000 gallons. No condenser. Ventilation limited to one wind sail and open ports, all of which must be closed in bad weather. Board recommended battalion, Second Massachusetts Volunteers, to be removed—300 men.

Steamer *Miami*, transport No. 1. Command, Ninth Cavalry and Sixth Infantry. Officers, 63; enlisted men, 902. On the lower deck were no bunks. On the main deck 750, in which were accommodated 652 men. On the upper deck no bunks. There were 250 men camped out. The ventilation of the main deck was bad, the hold being a tight box without deadlights. There were two wind sails. Water-closets, 2—not sufficient. Increase recommended.

Several other transports were inspected by the board, in which the conditions appeared to be very satisfactory. The changes recommended were made so far as time would permit.

Water on transports.—The water on the transports, which was stated to have been largely drawn from New York, in many cases had a fetid odor of decomposition, apparently due to the foulness of the tanks. This pertained likewise to ships that had St. Petersburg water furnished them through the water steamer *Olivette*. St. Petersburg was a small town across the bay, whose water supply appeared to have been exceptionally good. It was conveyed by pipe line to the wharf and pumped into the *Olivette's* tanks for distribution. The tanks on this steamer being clean, the water was always good. That ship casks should get foul is no wonder, as they were usually in such position as to gather dirt whenever opened, the opening being a square hole 6 by 8 inches covered with a piece of canvas, which was as often off as on.

The hospital steamer Olivette.—As the embarkation took place and reports of sickness on the transports came in, it became quite evident that a hospital steamer must be secured with the least possible delay. Under direction of the commanding general I examined several boats with view to selection, but none of them presented more desirable qualities than the steamer *Olivette*, which was doing service

* First Lieut. James Stafford, Seventy-first New York Volunteer Infantry, assigned to Fourth Infantry just as transport sailed.

as a water carrier and distributor for all the transports of the fleet. She had large stateroom accommodation both on the upper and lower deck, a large-sized dining saloon, which was later used as a place for surgical work; she carried plenty of ice and water, and was without cargo except some horses, I believe, and forage for the same, which was cleaned out later.

The transfer of Major Appel's hospital from the *Comal* was quickly effected, and he at once proceeded to gather up the sick from the various transports, signals being hoisted every morning when his services were needed. These were from time to time transferred to a small hospital on shore in the artillery camp, with a view to their early transportation to the north. The removal of the sick from transports was often a slow and difficult process, particularly in rough water; for they first must be lowered into a small boat, which was at one time lifted on the crest of a rising wave and the next plunged into the gulf of a sinking one, and then pulled to the side of the hospital ship, where the same dangerous process was to be repeated in getting them on board. But the work was continued, and happily without accident, until the fleet was cleared of its most serious cases.

On the afternoon of June 13 and the morning of the 14th the fleet of twenty-eight transports and other craft sailed out from Tampa Bay with crowded decks and rigging, and bands playing. The weather was delightful and the sea as smooth as glass. Indeed, fair weather accompanied us the whole voyage, which occupied some eight days. Hatches and ports could be kept wide open, and the men lived virtually in the open air. Had it been otherwise, their suffering from sea sickness and the foul air of the unventilated holds would have been intolerable.

After the departure of the fleet the *Olivette* steamed to the dock to take on coal for the voyage. An opportunity was given to unload the ship of some cases of measles and light cases of fever. This was a fortunate circumstance, as it placed the steamer in condition to relieve the transports of their sick on arrival at Daiquiri, many of whom were later transferred to the steamer *Iroquois*, so that room was made for the wounded of the impending battle on the 24th of June at Guasimas and the 1st and 2d of July at San Juan Hill and before the intrenchments of Santiago de Cuba.

The landing of the Fifth Army Corps on the 22d of June at Daiquiri was accomplished in a brilliant manner. The escapes from death by drowning were many. That there were only two casualties of this nature is really remarkable, all of the circumstances being considered. As is well known, the troops went on shore with only such rations, shelter tents, and cooking apparatus as they were able to carry on their persons. The same is true of all medical officers and men of the Hospital Corps assigned to duty with the several organizations. This prevented the transportation of any medical supplies beyond what could be carried in the hands.

Of litters there was by no means a sufficient number, as many of the regiments had neglected to bring them from their several stations. This was a deficiency which we keenly felt later upon the field of battle, and which could not be rectified by the Medical Department. Where there should have been 10 litters to each regiment there were often but 2, and sometimes none.

First-aid packets.—Prior to embarkation there were received at the medical supply depot in Tampa about 12,000 first-aid packets, which, under direction of the chief surgeon, were issued to the several brigade surgeons with a view to their subsequent distribution to the troops while on transport, it being considered that if placed at once in the hands of the soldiers they would often be lost or thrown away, as they subsequently were on the march through the tropical jungle extending from Siboney to San Juan Hill.

These first-aid packets were liberally used in dressing the wounds received in battle, and the skill and care with which they were found to have been applied on receipt of the wounded at our field hospitals attest the courage and devotion of our medical staff.

Medical supplies.—Medical and surgical chests with which the regular regiments were in nearly every instance provided were in the hurry of departure unfortunately left on the transports, together with all extra medical supplies. A few medical officers took their chests with them only to abandon them within the first mile of march, leaving them to be afterwards picked up by passing wagons or ambulances. After the departure of the troops came the unloading of the pack animals, the subsistence stores, and the ammunition. It was a tedious and dangerous work that could only be done in the early morning hours, before the wind sprang up, by the small boats and later by the single steam lighter, the *Laura*, because of the rocky nature of the coast even in the harbors, the abrupt plunge of the beach into deep water, and the inadequate docking facilities at both Daiquiri and Siboney. Then, too, the masters of transports took them out to sea after debarkation of the

command, for many hours and even for days, because of their fears of wreck by collision with each other or by drifting upon the rocks. With all these difficulties in getting out the absolute necessities for life and military security for the troops, it can well be appreciated that little opportunity was given to unload tents and medical chests. Constant efforts were made by the chief surgeon to recover them, but with very meager results. He was more than grateful when he succeeded in getting the field hospitals on shore, as will be described later.

The absence of the medical chests was a great blow to regimental medical officers and a matter of keenest anxiety to the chief surgeon, particularly after the troops had dug the trenches and the sick lists were increasing rapidly by the appearance of malaria and thermic fevers and by diarrheas and dysenteries.

Reserve medicines, hospital delicacies, etc.—Three days prior to the order of embarkation, which was given on the night of June 8, I directed Capt. C. M. Gandy, assistant surgeon, the acting medical supply officer at Tampa, Fla., to set aside one-half of all the medicines and surgical supplies remaining in the storehouses to be taken as a reserve upon the headquarters ship the *Seguranca* under my own charge. At the time the order was given supplies were beginning to be unloaded from the trains by the quartermaster's department and issues were made to regimental surgeons, of both volunteer and regular organizations, of such articles as were needed. The reserve was not large, and was gotten out of the storehouse by myself and two hospital-corps men at midnight of the 8th and put upon the train which left for Port Tampa at 2.30 a. m. of the 9th. There were two wagon loads taken that night, and Captain Gandy sent two more on the following morning. Among this lot of medicines there was fortunately a large amount of quinine—2 barrels in all—and other material, and three sets of surgical chests and sterilizers. The medicines received on the morning of the 9th were ultimately placed on the steamer *Olivette*, where they were much needed.

My reason for taking only one-half the amount of supplies in the storehouses was that volunteer regiments were continually arriving at Tampa, and I felt certain that they would need everything that I could spare, as these troops were usually destitute of everything.

This lot of medicines was landed from the *Seguranca* at Siboney about June 27 and placed in charge of Maj. Ogden Rafferty, surgeon, United States Volunteers, with orders to act as medical-supply officer and issue the same. As the headquarters of the Fifth Army Corps was moved to the front on the 28th, the chief surgeon left instructions to Major Rafferty to use every effort to get the medical supplies known to be on transports and either ship them to the front as opportunity occurred or turn them into the hospital at Siboney, from which point our supplies were drawn up to July 23.

Although no report was made to me of the results of these efforts, I do know that medicines (in small quantities, to be sure) were brought up by returning ambulances and distributed to the chief surgeons of divisions. But there was never enough to satisfy the demands, even after the arrival of the hospital steamer *Relief*, which was reported to the chief surgeon to have on board 700 tons of medical supplies. What these supplies consisted of I do not know, as I was continually at the front, but I do know that the medicines required by us and the hospital delicacies brought by her were reported to me as practically exhausted by the 22d of July.

As the chief surgeon of the corps had been twice informed by the Surgeon-General that the *Relief* was not only loaded with everything that we should need, but would join the expedition at an early date, it can be imagined with what anxiety he awaited her arrival and what disappointment he suffered when he learned that her supplies were being exhausted at so early a date.

NOTE.—The arrival of the *Relief* was reported to the chief surgeon by telephone about July 8 by Major Torney, the officer in charge. Later, Colonel Greenleaf, who arrived on the *Yale*, telephoned they would have to be unloaded before the exact nature of her supplies could be ascertained, as no packer's list was on hand and the boxes were without content marks. Further, he requested the chief surgeon to send to Siboney a steward and some hospital-corps men to assist in the work of unpacking and sorting contents of boxes, which request was complied with as soon as possible, the men being detailed from volunteer regiments. Later, Acting Asst. Surg. W. E. Parker, United States Army, was placed in charge of the stores and attended to their issue. His report in this connection would be of interest.

Memorandum of events from June 22 to 28.—On the 22d of June the landing took place at Daiquiri, the naval steam launches and boats conveying the troops to the shore.

On the 23d the Navy furnished a few launches and some boats to convey the remainder of the troops on shore at Siboney, also some rations and ammunition,

but nearly all were withdrawn in the afternoon, as the heavy surf prevented any further landing.

On the morning of the 24th the chief surgeon requested of the commanding general that he be furnished a steam launch and boats to hunt up transports and get off the medical supplies. As it was impossible to get the steam launch from the navy so early in the morning, the use of a rowboat from the *Seguranca* was authorized and sent out with such supplies as belonged to the First Infantry, under charge of Captain Munson, assistant surgeon, who was the executive officer of the chief surgeon. Permission to continue the use of this only boat was then withdrawn, as it was needed for other purposes. By this time a strong breeze sprung up, which prevented any further attempt to reach the scattered transports or safely to board them. About noon of the 24th, news of the battle at Sevilla having been received, the chief surgeon and his executive officer after much difficulty were put on board the steamer *Olivette*. He ordered the ship to proceed at once to Siboney, where it arrived in time to take care of all the wounded that could be brought on board that night and the next day by naval boats and launches.

On the 26th of June the transport *Saratoga* came into Siboney Harbor. This steamer had on board a field hospital under command of Major La Garde, surgeon. After much difficulty the chief surgeon managed to board her and order the immediate landing of all her tentage and medical supplies, etc. The steam lighter was alongside taking off commissary stores under command of the chief commissary. The chief surgeon asked that the hospital might be taken on shore with the stores. He was informed that it was positively prohibited that the lighter be used for any other purpose than to unload subsistence stores. The chief surgeon after much difficulty boarded the headquarters boat again and got a direct order from the commanding general to take the hospital to shore on the lighter. This order was personally delivered by the chief surgeon and the landing was accomplished that afternoon.

On the 27th of June the commanding general directed Dr. Goodfellow to take the steamer *Cumberland* and proceed to Daiquiri, hunt up transports, take off from them certain quartermaster's employees known to be on board, and at the same time to remove and land all medical chests and supplies. Thirteen ships were visited. On several of the transports they were found and landed. On others they could not be found, the ship officers and crew claiming to know nothing of their whereabouts. In the afternoon the work was stopped, as the *Cumberland* was imperatively needed elsewhere.

On the same day, at Siboney, by direction of the commanding general, the chief surgeon, with great difficulty, managed to get a small boat to take him on board the steam tug belonging to Mr. Hearst, of the New York Journal. Finding that that gentleman had gone to the *Olivette*, the chief surgeon boarded that ship and begged that he would lend his steam launch to tow boats to transports for the purpose of removing medical stores. Mr. Hearst kindly promised to give its use, but the launch never appeared. The chief surgeon was then authorized by the commanding general to hire any tug that he could find and to use it to run down transports and get off the medical supplies. The only tug in sight was a newspaper boat, with which he was unable to communicate before it put off to sea.

On the morning of the 28th the chief surgeon succeeded in landing from the steamer *Seguranca* all his reserved stock of medical supplies and placed them in charge of Maj. Ogden Rafferty, surgeon, United States Volunteers, who had just reported for duty. He also directed Major Rafferty to act as medical storekeeper and make every endeavor to get from the transports as they were unloaded such regimental medical stores as might be on board. What success he had at that work I do not know, as I accompanied the commanding general to the front and was detained there by my duties until the end of the campaign.

It may here be stated that the steamer *Relief* had equal difficulty in unloading stores, nearly one week being consumed in getting them on shore, when the facilities were much better than during the early days of the expedition.

Field hospitals.—Of the field hospitals that had been organized at Tampa the first divisional, under command of Maj. M. W. Wood, surgeon, was the first to be landed. The report of Major Wood for June, which was forwarded to the Surgeon-General, shows under what difficulties this was effected, and how, by the heroic struggles of the Hospital Corps detachment, it was carried to the front practically by hand and by litters used as hand barrows.

The second field hospital landed was, I think, that of the cavalry division, under command of Major McCreery, surgeon, who succeeded in getting off only a portion of its tentage and surgical supplies when the transport stood out from land with the remainder of the outfit on board. I do not think that the whole of this hospital was ever assembled. Where it went I have not been able

to ascertain. It was moved to the front at an early date, and under the direction of Major Havard, chief surgeon of the cavalry division, became of service during the battles of the 1st and 2d of July.

The third or reserve hospital, under command of Major La Garde, surgeon, after many delays, during which the transport *Saratoga* was drifting miles at sea, was successfully landed by the lighter *Laura* at Siboney, and ultimately became the base hospital. To this was sent all medical supplies that could be gotten from transports and those from the hospital ship *Relief*.

The fourth hospital, under command of Maj. A. H. Appel, surgeon, was retained on the steamer *Olivette*, which became a hospital ship.

Two other hospitals were organized near corps headquarters, one under charge of Major Crampton, surgeon, for the reception of the sick—a detention camp, so to speak—until they could be separated; the second, a yellow-fever hospital, under charge of Dr. Hamilton R. Jones and Dr. F. J. Combe, acting assistant surgeons, United States Army. These hospitals, like all the others, were for a long time sadly deficient in tentage, bedding, and supplies, but later they were procured and good work was done, 125 cases of yellow fever being treated in them up to July 23, with a record of 35 deaths.

Major Crampton's hospital, which was at first only a collection of shelter tents, unfortunately located on bad ground, the mud at times being several inches deep, was later changed to a side hill, and some tents, furnished by Major La Garde from the hospital at Siboney, put up. These two hospitals were later placed under the control of Surgeon Ives, United States Army, and were continued until larger hospitals were established near the city of Santiago.

As has been stated, these hospitals were all of them lacking in a sufficient supply of tents, cots, bedding, and medicines, but were well equipped with surgical operating tables, surgical instruments, sterilizers, dressing chests, etc. After the headquarters of the commanding general was moved to the front an order was given by the chief surgeon to Major Appel to unload from the *Olivette* all his tentage and camp outfit and transfer it to Major La Garde at Siboney, and I am informed this was done, although no formal report was made to me of the matter.

The lack of tents was not particularly felt after the battle at Sevilla, as the wounded were brought at once to the steamer *Olivette*, where operations were performed and the officers and men made comfortable. But after the battles of July 1, 2, and 3 the inadequacy of shelter that could be furnished the wounded, and later to those who were sick, gave the greatest distress to all concerned. But the tents were not at hand, and only supplied in sufficient numbers after weeks of delay.

Ambulances.—Only three ambulances were carried on the transports. These were unloaded and set up in time to be of service during the battle of July 1 and subsequently. They were placed in charge of First Lieutenant Godfrey, assistant surgeon, and he carried them to the fighting line, frequently under fire of the enemy, in the work of removing wounded to the rear.

Later (about July 2) a train of ten ambulances arrived on the transport *Louisiana*, in charge of First Lieut. J. M. Kennedy, assistant surgeon. They were promptly disembarked at Daiquiri and brought to the front. The park was stationed near corps headquarters, where the train could be under control of the chief surgeon. This train, though small and frequently depleted of its drivers by disease, was of immense service, and under the efficient management of Lieutenant Kennedy was constantly engaged in transporting the sick and wounded from the camps to the advance hospitals, and from them to the base hospital at Siboney; and from that place medical supplies were transported to the front as fast as they were received, any reserve that might accumulate being protected by wagon paulins and a few tents. Through frequent discouragements, due to the breaking of tongues and other parts of ambulances, of harnesses and litters, the sickness of mules and of drivers, he kept them steadily at work over the awful roads, and efficiently did all so small a train could do.

Wagons bedded with hay, so long as any could be procured, and sometimes with grass, were also largely used in moving patients, but it was painful and sometimes frightful work, which the overwhelming pressure of numbers rendered unavoidable.

Among the precautions taken by Lieutenant Kennedy to prevent the spread of disease, he had the inside of his ambulances frequently washed with bichloride solutions 1:1000, the seats, curtains, and floors being attended to after every occupancy by a yellow-fever case; then separate ambulances were assigned to yellow-fever hospitals for removal of the sick from camps of detention to the same.

Yellow fever.—During the second week in July Dr. John Guiteras, acting assistant surgeon, United States Army, who had been left at Siboney with view to special work in connection with yellow fever, reported having discovered five cases of that disease. Three of the patients were newspaper correspondents; others from the Thirty-fourth Michigan Volunteer Infantry. Later, daily reports showed a steady and rapid increase of the disease, local unsanitary conditions favoring its spread. The fact that most of the patients had been sleeping in or resorting to habitations which were considered infected was reported. Upon this the commanding general directed the destruction by fire of all the buildings at that point.

On the arrival of the steamer *Yale*, Col. Charles R. Greenleaf, assistant surgeon-general, took charge at Siboney, and commenced a vigorous police of the town and the exclusion of all Cuban and Spanish refugees. Col. Nicholas Senn, chief surgeon, United States Volunteers, had before this assisted in the work of purification, and Major Gorgas, surgeon, United States Army, was detailed in charge of the yellow-fever hospital, and Major McCreery, surgeon, in administrative charge of the town.

A few days later, as cases were reported among the sick received from the front at the detention camp near corps headquarters, Acting Asst. Surg. Hamilton R. Jones was directed to make an inspection of all sick arriving and separate the yellow fever cases. A hospital for these was established three-quarters of a mile distant on an eligible site. Dr. Jones was placed in charge of this hospital with Acting Asst. Surg. J. F. Combe as his assistant. Cuban nurses were employed at first, but they proved to be worthless, and were either discharged or left in a short while. As was always the case, the lack of shelter was a serious evil, which was corrected very slowly and only as tents could be spared from Siboney and the surgical hospital under Major Wood. Up to July 23, 125 cases were received in this hospital and a mortality rate reported of about 12 per cent.

At Siboney cases continued to accumulate until over 400 were reported, the death rate being slightly higher than the above.

NOTE.—Very shortly after the debarkation of troops at Siboney the chief surgeon of the corps called upon the commander of the Cuban forces, who with his staff was quartered in the most desirable house in the place, and asked him in regard to the existence of yellow fever in or near the village. He stated in excellent English that there had been no case in the place recently. When questioned as to possible danger in occupying dwellings there or coming in contact with his people, he said he believed there would be no danger, as the Cubans rarely had yellow fever. When asked as to the advisability of burning the village to destroy infected houses, he replied that he did not think it necessary and that it might seem like wanton destruction of property.

Under the influence of this opinion neither the chief surgeon nor the commanding general thought it advisable to burn the town at that time, but orders were given that the troops should keep out of the houses and palmetto shacks. This order was not observed by civilians, nor by the commander of certain volunteer regiments and their staffs, the result being that they discovered the infective points very promptly and were attacked by the disease. After this had happened the town was destroyed, as stated.

Dr. Jones, who was ordered to inspect the fever cases under treatment in the lines, reported many mild cases and several serious ones, all of which were removed as quickly as possible to the hospital, the presence of albumen in the urine being apparently the main diagnostic point. Unfortunately regimental surgeons were without their urinary test sets, and nitric acid and test tubes were very scarce at all the hospitals. For this reason many cases that were thought to be simple ephemeral or thermic fever and various forms of malarial manifestation, which were widespread among the troops and complicated every disease, were really mild and undetected cases of yellow fever. The uncertainty of diagnosis was increased by the practical absence of yellow fever among the refugees or in the city, as reported by Dr. Hartmann, of Santiago, who had been a lifelong resident and practitioner, and who was one of the 22,000 refugees at Caney. Then numerous regiments which had suffered no contact with refugees, were isolated in fact, furnished cases of the disease. All of the regiments had one common condition, however, that of the construction of heavy lines of intrenchments and the necessity of living in or near this upturned soil for nearly two weeks. As I believe this was one of the principal causes of widespread malarial infection, so do I believe that it was the main cause of yellow fever infection. That this telluric variety of yellow fever was mild in type gave a reasonable hope that by the prompt recognition and separation of cases and the removal of camps the disease might be controlled before the virulence of the infective germ was increased by transmission through the human body.

Removal of camps, etc.—So soon as the military situation permitted, the commanding general directed the removal of all camps from the trenches, and the selection of elevated and well-drained sites on the hills to the north and east of the city. One camp, that of the First Infantry, was located near San Luis, for military reasons. The mountain range was avoided because of the lack of roads over which supplies could be drawn and the lack of water; also because of the marked increase of rainfall in that region, storms being much more frequent there than near the city. The camps varied in distance from Santiago. The nearest and the healthiest, that of corps headquarters, was 1 mile from the edge of town, on the ridge about 100 feet high. The farthest, that of the cavalry division, about 4 miles, under the foothills to the north. The mountain plateau country was unsuitable for camping purposes, because of the lack of shade and the deep black muck of soil, which was a perpetual quagmire during the rainy season. The men and officers of the First Infantry suffered intensely in that country from the moist heat of the day and the drenching by storms.

Tentage, etc.—It was not until the last week in July and the first week of August that regimental tents and camp equipage began to be unloaded from the transports and were carried to the camps, and up to the time of reembarkation many of the regiments were still protected only by their shelter halves. Where the material could be procured some of the troops made themselves bunks, elevated from the ground, but ordinarily this was not done, the material not being at hand, and the energy of the men exhausted by sickness and the tropical climate. Where the tents and the bunks were combined the greater comfort possibly revived the waning health of the men. But this was not apparent at once.

Among the camp equipage were to be classed the kettles for boiling water and the ovens for cooking and baking, all of which were necessary to establish the company messes and better methods of preparing the food supply. At the same time canned tomatoes and other vegetables began to appear and fears of scorbutic complications to wane; but with it all the intense infection of trench fever continued its work until over 4,000 men and officers were on sick report. It became thus evident that the solution of the problem lay only in the immediate removal of the whole command to the United States, which was commenced August 8, and continued under regulations established by the War Department as rapidly as transports were furnished until the 25th of August.

Use of transports for the sick and wounded.—Very early after the battle of Sevilla, and from that time on, the use of transports for the accommodation of slight cases of wounding and for the sick and convalescent became absolutely necessary, in the absence of regular hospital ships and the congestion of the hospitals with numbers of patients for whom necessary shelter could not be provided on shore, because of the lack of tents and the lack of cots. At the front and in the trenches hundreds of men were waiting for hospital treatment, which could not be given them until room was made, and room could only be made by shipping north those able to travel. For this reason the chief surgeon recommended the use of transports, and they were used with evident satisfaction up to the *Seneca* and *Concho* incidents, when there seems to have been complaint as to the alleged foul water on the ships and the lack of supplies for the sick. In regard to the first condition, these transports were wholly under control of the quartermaster's department in all matters pertaining to the ship itself, and foul-smelling water from long storage was a condition common to nearly all of them.

About the 20th of July Major La Garde, surgeon in charge of the hospital at Siboney, was asked by the chief surgeon, through telephone, how many more patients he could accommodate. He replied that his hospital was full, but that he had 175 convalescents, who, while unable to be returned to duty, were able to travel. In order to make room for many grave cases of sickness reported in camps, I requested that a transport be designated to take these convalescents to the States, and thus vacate beds and shelter for graver cases. The commanding general authorized the transfer and the chief quartermaster designated the vessels named. The conditions were urgent and because of the lack of tents the hospitals could not be enlarged, so as many convalescents as possible were sent north. The selection of those to go and the provision of medical stores was in the hands of the surgeon in charge of medical administration at Siboney. The foulness of the ships was a matter to be remedied by the captain and crew, and with the powerful pumps on hand I was assured no difficulty could be met in making a ship clean at any time during the voyage.

The lack of surgeons and nurses on these vessels was probably unavoidable, the lack because of sickness and other causes being one that pertained to all the hospitals of the corps at that time and to many regimental organizations also. Furthermore, the convalescents were supposed to be practically well men, and at least able to care for themselves, except during such illness as might break out during

the voyage, and for this contingency reasonable provision had been made by the presence of two medical officers and some most necessary medical stores. If any serious cases of illness or wounds were sent on these ships it was without direction from the chief surgeon.

Fight at Sevilla or Guasimas.—The engagement occurring on the 24th of June at a locality known as Sevilla or Guasimas, about 4 miles from Siboney, furnished 52 wounded men, who were slowly brought on litters to the shore, where they were temporarily rested in a very foul old shed until boats and launches could be procured from the Navy to transport them to the steamer *Olivette*. In handling the wounded much skill was shown by the sailor and hospital corps private, as well as a good deal of courage, in carrying the boat through the surf and alongside the steamer, where they were unloaded near an open port hole, and the patients carried thence onto the main deck to await their several turns at the operating table.

The chief surgeon spent the night on this steamer and can not too highly commend the effective administration of its affairs by Maj. A. H. Appel, surgeon in charge. The ship was well adapted to hospital work, and the surgical outfit made easily available. The large dining room, which was lighted by electricity, was rapidly converted into an operating room, the mess tables and chairs being moved away, and surgical tables, sterilizers, and dressing cases substituted.

The staterooms of the *Olivette* were largely above the main deck and well ventilated, although the use of staterooms rendered the task of nursing and surgical dressing more difficult than where open and clear decks could be fitted up. Bathrooms were extemporized, and the mess and nursing appliances of the field hospital were easily sterilized. A large stateroom was used as a dispensary, and the smoking room on the upper deck as an office.

This early battle gave the first illustration in actual warfare of the value of the first-aid dressings. All of the wounded showed most careful application of the dressing, which in many cases might have been left undisturbed could the exact nature of the surgical condition have been known without their removal. The nature of the surgery was conservative, no occasion for the graver operations appearing. One case of trephining for wound of the head was made by Lieut. L. P. Smith, assistant surgeon, United States Army, and a laminectomy for shot wound of the lumbar vertebrae by Major Appel.

Battles.—The action of July 1, 2, and 3 have been so fully written up in military reports that a further description would be unnecessary. The operations of the medical department have received no description that has come to my notice that does justice to the gallantry of the medical staff on the field or its skillful and tireless work in the hospitals. The bravery of our men under fire was conspicuous. They shared all the dangers and sufferings of the campaign equally with the officers of the line.

In Major Wood's hospital over 1,000 wounded men were received within three days, and in spite of lack of shelter and the subsequent exposure to intense heat and drenching rains, the mortality rate was less than 7 per cent.

All of the wounded showed the most careful primary dressing, which permitted deliberate work in the hospitals in the application of operation and secondary dressings. Fractures of the thigh were carefully splinted on the field, sometimes with rods or wire, at others with the broad bark of the palm tree, which when wet was pliable and when dry firmly adherent, and it could be cut into any desired shape with a knife or rolled into desired forms with great ease.

The transportation of the wounded from the field of battle, 3 miles distant, was mainly by litter and three ambulances. In a few cases an extemporized carriage was tried, but not often with success. The wounded from the fight at El Caney were cared for at that place by Major Ebert, surgeon with the Seventeenth Infantry. They were brought in later by means of ambulances and wagons. There were at this place over 150 wounded Spanish prisoners, who were cared for by Major Ebert and later by Drs. Goodfellow, Marshall, and Menocal, until they were transferred through the lines to the large Spanish hospital in the city.

Early after the battle the hospital was honored by the presence of Miss Clara Barton and her staff of four assistants, who immediately set up their tents and cooking apparatus, and labored incessantly day and night, in the broiling sun and drenching rain, preparing sick food for the wounded and serving it to them, and in a thousand other ways giving the help that the Red Cross Society brings.

At the earliest practicable date the wounded were moved to Siboney, commencing with the slighter injuries, and proceeding day by day until about the 17th of July, when the hospital was empty and ready to be moved further to the front. This was done by Major Wood, a site being selected on a hill near the road running north and not far from Cubitas, a collection of houses on Purgatorio Creek.

Health of the troops.—The health of the troops while at Tampa was excellent as a whole, the number of those excused from duty being considerably less than the rate of peace service at military posts. But this low rate did not include the large number who were suffering from an acclimating diarrhea, which broke out in the regiments newly arrived. This disorder, which was widespread and annoying, resulted in using up a large amount of medicines without materially impairing the effectiveness of the command. The reasons for its incurrence, I think, may be found not in any defect of water supply, which would have affected citizens as well as soldiers, nor yet in the food, which among the regular troops did not materially differ from that to which they were accustomed, but I believe it was due rather to change of habitation from warm, dry bedding in warm, dry barracks to the damp chills of sleeping on the ground, often with no other bed than a thin rubber sheet. Every night our clothing was drenched with dew, and every day it was drenched with sweat, and from this alternate heat and chill I believe the intestinal catarrhs and colics arose. When we became accustomed to the change, our troubles in that respect ceased. Another cause was the innumerable so-called soda water and "pop stands" that peddled their indigestible stuff on the outskirts of the camps, and with which the unwary and imprudent soldier was always gorging himself, not because his food was insufficient, but because of his childlike hunger for sweet stuff of any nature.

About the same time measles appeared among the troops, affecting regulars as well as volunteers, and old men as well as young. The disease, which had been unusually prevalent all over the North during the winter preceding, spread rapidly in the camps. Prompt isolation of the patients by removal from their commands to the field hospitals seemed to hold it in check, so that in the history of the expedition it did not become a very important factor. The type was not severe, and the mortality rate was small.

Typhoid fever appeared early and increased with rapidity as the season advanced. Just why it should have become so widespread I can not now conjecture. While we naturally look to an infected water supply as the universal cause, I think we must admit the possibility of infection of both food and water through showers of infected dust and swarming of infected flies who travel from the sinks to the mess tents with intolerable regularity. In too many cases the covering of sinks was perfunctory—usually done at reveille and in the afternoon—but its contents left bare during the middle of the day when most in use.

The infection of water barrels by dust being blown into them was easy, and the inhalation and swallowing of infected dust was by no means impossible.

The typhoid fever existing in Tampa prior to embarkation of the troops was of a grave type, but fortunately the mortality was not large. Later, in Cuba, after the strength and vitality of the men became lowered by the exposures and hardships of war, the mortality rate increased and the disease took its place among the foremost causes of disability. Malarial fevers and a variety of ephemeral fever, which simulated dengue, appeared in Cuba. The diseases were widespread and of a severe type. In all of them great prostration would follow apparent recovery, and convalescence was protracted. Large doses of quinine were required to control the malarial variety. The ephemeral fever, which exhibited a temperature often as high as 105° and 106° F., would disappear in about four days, with protracted convalescence and a tendency to recurrence. Quinine was used in large doses, but without checking the disease.

In Cuba many of these ephemeral forms were later diagnosed as yellow fever, particularly when they were subjected to urinary test; but without that the Tampa and Cuban varieties looked much alike.

During the latter part of July and August the tendency to diarrhea and dysentery became pronounced, although the diet of the troops had much improved and the water supply was certainly no worse than it had been from the first. The majority of medical officers regarded it as of malarial origin and treated it as such, and frequently with large rectal injections of quinine. Attempts were made to check its spread by recommending the use of boiled water for drinking purposes without favorable results, probably because the men preferred the disease to the remedy. At divisional hospital No. 1, where boiled and filtered water was freely supplied, and about all that was to be had, the incurrence of diarrhea and dysentery was almost unknown. Among the regiments the excuse for not furnishing boiled water was valid; the commands were, until very late, without the necessary kettles and cauldrons to heat the water. When the soldier had only his tin cup and ration can and a little fire of green twigs with which to cook his food, boiled water was omitted.

Sanitary advice.—Before leaving Tampa the chief surgeon secured the publication of General Orders, No. 8, headquarters Fifth Army Corps, June 2, 1898, in

relation to the sanitary care of troops. This circular was prepared by Dr. John Guiteras, acting assistant surgeon, United States Army, as was also a small card circular intended as a pocket companion. Copies of these are hereto appended.

Medical staff.—A pocket register of the medical officers, regular, volunteer, and contract, was kept by the chief surgeon, from which the following information can be given, and in the absence of verification by comparison with the larger desk records turned over to Lieutenant-Colonel Havard, chief surgeon, United States Volunteers, it is believed may be said to be fairly correct.

On the 22d of June there were on duty with the Fifth Army Corps 36 regular medical officers, 15 volunteer medical officers and 20 contract surgeons, total 71, to supply 20 regiments of infantry, 5 regiments of cavalry, 2 squadrons of mounted troops, 3 batteries of light artillery, 1 battalion siege artillery, 1 engineer battalion, 3 field hospitals, a large wagon train, 1 hospital ship, the pack train, the Gatling-gun detachment, signal-corps detachment, and 2 independent stations; in all, 37 military organizations and 2 quartermaster stations—Daiquiri and Siboney, and 4 hospitals.

It is my opinion that the number of medical officers was insufficient to meet the demands of service in Cuba. There should have been to every regiment at least 2 medical officers, or 50 to start with. To every squadron of cavalry, battery of artillery, and battalion of engineers, gun detachment, squad corps, pack train, 1 or 2 assistants. To every hospital, 4 as regular staff and 4 contracts as assistants, or 32; making a total of 90 officers.

Concerning the medical officers and men of the hospital corps who were with the expedition, I can not speak too highly. They shared all the hardships that came to the Fifth Army Corps, not alone during the assault and siege of Santiago de Cuba, but in the far more trying battle with disease, which day after day ravaged our camps and threatened annihilation as a fighting force to the gallant troops who had won one of the most splendid victories of history. These brave and devoted men, through the blistering heat and drenching rains and equally drenching dews of a tropical summer, marched side by side with their comrades of the line, slept in the mud, breathed the deadly vapors of the jungles, and more pestilential miasmas of the upturned earth in the trenches, endured the same privations as to lack of food and shelter, worked when others slept, resting neither day nor night so long as their services were anywhere called for, whether on the march, in the camps, or in the hospitals. Can we deny to them equal share in the honors that may be bestowed upon their fellow soldiers? I can at least append their names, in the hope that they may not be forgotten. There are also others, who joined the command later and did faithful and valuable service, whom I hope will be embraced in a supplementary list.

This report closes with July 23, 1898, when, on account of continued illness and at my own request, I was relieved by the commanding general from duty as chief surgeon of the corps and Maj. Valery Havard, surgeon, was appointed acting chief surgeon in my stead, the administrative duties of the office being assumed by him. His report will cover the operations of the department from that date.

DOCUMENTS ATTACHED TO LIEUTENANT-COLONEL POPE'S REPORT.

1. *List of regular and volunteer medical officers and acting assistant surgeons on duty with the Fifth Army Corps at the date of the landing of the expedition at Daiquiri and Siboney, Cuba.*

Lieut. Col. B. F. Pope, chief surgeon, United States Volunteers; chief surgeon, Fifth Army Corps, April 23 to July 23, 1898, when relieved on account of illness. Remained with the corps, however, until it returned to the United States.

Lieut. Col. Valery Havard, chief surgeon, United States Volunteers; chief surgeon, Fifth Army Corps, from July 23, 1898, to August 25, 1898, when he was announced as chief surgeon of the Department of Santiago; chief surgeon of the cavalry division to July 23, 1898.

Maj. Henry S. Kilbourne, surgeon, United States Army; chief surgeon, Second Division. Later, September 10, 1898, chief surgeon, Fifth Army Corps.

Maj. M. W. Wood, surgeon, United States Army; chief surgeon, First Division; also in charge divisional hospital No. 1 to July 21, 1898.

Maj. L. W. Crampton, surgeon, United States Army, Eighth United States Infantry; in charge detention hospital near corps headquarters; chief surgeon, First Brigade, Second Division.

Maj. S. Q. Robinson, surgeon, United States Army, Tenth United States Infantry; chief surgeon, Second Brigade, and acting chief surgeon of the Second Division. Later, in charge of divisional hospital No. 1. Left at Santiago de Cuba on departure of the Fifth Army Corps for the United States.

Maj. L. A. La Garde, surgeon, United States Army, Ninth United States Cav-

alry; in charge of divisional hospital No. 3, at Port Tampa, Fla., and Siboney, Cuba; also in charge of all administrative work at that place.

Maj. A. H. Appel, surgeon, United States Army; in charge of divisional hospital No. 2, at Tampa, Fla.; also of same hospital on steamer *Olivette*.

Maj. George McCreery, surgeon, United States Army, Sixth United States Cavalry; in charge of field hospital, cavalry division; executive officer at Siboney during the yellow-fever epidemic. Died at sea en route to the United States.

Maj. R. G. Ebert, surgeon, United States Army, Seventeenth United States Infantry, chief surgeon, Second Brigade, Second Division; also in charge of wounded Spanish prisoners at El Caney, Cuba.

Maj. R. W. Johnson, brigade surgeon, United States Volunteers. Executive officer and surgeon, divisional hospital, No. 1. Left at Santiago de Cuba after the departure of the Fifth Corps for the United States.

Maj. W. D. McCaw, brigade surgeon, United States Volunteers, Sixth United States Infantry; chief surgeon First Brigade, First Division.

Maj. F. J. Ives, brigade surgeon, United States Volunteers, Twentieth United States Infantry; chief surgeon General Bates's Independent Division.

Maj. H. S. T. Harris, brigade surgeon, United States Volunteers, Ninth United States Cavalry; later chief surgeon Cavalry Division.

Maj. W. B. Banister, brigade surgeon, United States Volunteers, Second United States Infantry. In charge field hospital near General Bates's Division. Left at Santiago after departure of the Fifty Army Corps.

Maj. Paul Shillock, brigade surgeon, United States Volunteers, Twenty-fifth United States Infantry; chief surgeon, Second Brigade, Second Division.

Maj. W. C. Gorgas, brigade surgeon, United States Volunteers.

Maj. Ogden Rafferty, brigade surgeon, United States Volunteers. On duty at Siboney, Cuba, as acting medical supply officer. Returned to the United States in charge of sick, transport *Cherokee*, July 6, 1898.

Maj. Philip G. Wales, brigade surgeon, United States Volunteers, Twelfth United States Infantry.

Capt. A. B. Heyl, assistant surgeon, United States Army, First United States Cavalry. Returned to the United States about July 9, 1898.

Capt. Joseph T. Clarke, assistant surgeon, United States Army, Twenty-second United States Infantry.

Capt. M. W. Ireland, assistant surgeon, United States Army; surgeon at divisional hospital, No. 3 at Port Tampa, Fla., and Siboney, Cuba.

Capt. H. C. Fisher, assistant surgeon, United States Army, Twenty-first United States Infantry.

Capt. F. A. Winter, assistant surgeon, United States Army, Third United States Cavalry. Returned to the United States on transport *City of Washington*, July 9, 1898.

Capt. M. M. Brewer, assistant surgeon, United States Army, Tenth United States Cavalry. Died of typhoid fever on his return to the United States.

Capt. H. M. Hallock, assistant surgeon, United States Army, Seventh United States Infantry.

Capt. G. J. Newgarden, assistant surgeon, United States Army, Third United States Cavalry.

Capt. E. L. Munson, assistant surgeon, United States Army, executive officer to chief surgeon, Fifth Army Corps, on steamer *Olivette*, June 24 to 26; in charge of outfitting transports for reception of wounded to July 10; left for the United States on the *Breakwater* July 10, in charge of sick and wounded.

First Lieut. Guy C. M. Godfrey, assistant surgeon, United States Army.

First Lieut. J. M. Kennedy, assistant surgeon, United States Army; commanding ambulance train, Fifth Army Corps; in charge of distribution of supplies and the transportation of wounded and sick from July 20 to August —, 1898; in charge of the Nautical Club Hospital at Santiago de Cuba to —.

First Lieut. W. W. Quinton, assistant surgeon, United States Army, Battery A, Second Artillery.

First Lieut. D. C. Howard, assistant surgeon, United States Army. On duty at divisional hospital, No. 2, and on steamer *Olivette* to —.

First Lieut. W. H. Wilson, assistant surgeon, United States Army, Battery K, First Artillery.

First Lieut. T. J. Kirkpatrick, assistant surgeon, United States Army, Twenty-fourth United States Infantry.

First Lieut. J. H. Stone, assistant surgeon, United States Army, Sixteenth United States Infantry.

First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army, Fourth United States Infantry, and divisional hospital, No. 3, at Siboney.

First Lieut. L. A. Fuller, assistant surgeon, United States Army, Tenth United States Cavalry.

First Lieut. L. P. Smith, assistant surgeon, United States Army, divisional hospital, No. 2, and on hospital steamer *Olivette*.

The following are State volunteer officers:

Maj. W. D. Bell, surgeon, Seventy-first New York Infantry Volunteers.

Capt. H. E. Stafford, assistant surgeon, Seventy-first New York Infantry Volunteers.

First Lieut. James Stafford, assistant surgeon, Seventy-first New York Infantry Volunteers.

Maj. H. C. Bowen, surgeon, Second Massachusetts Infantry Volunteers.

E. A. Gates, assistant surgeon, Second Massachusetts Infantry Volunteers; also on duty at divisional hospital, No. 1.

J. S. Hitchcock, assistant surgeon, Second Massachusetts Infantry Volunteers.

Maj. Henry La Mott, surgeon, First United States Volunteer Cavalry.

Capt. J. A. Church, assistant surgeon, First United States Volunteer Cavalry.

Lieut. Frank Donaldson, assistant surgeon, First United States Volunteer Cavalry.

Maj. F. T. L. Magourn, surgeon volunteers, Ninth Massachusetts Infantry.

First Lieut. Peter Shea, assistant surgeon volunteers, Ninth Massachusetts Infantry.

Maj. V. C. Vaughan, surgeon, Thirty-third Michigan Infantry.

Guy B. Bailly, assistant surgeon, Thirty-third Michigan Infantry.

Maj. James A. King, surgeon, Thirty-fourth Michigan Infantry.

John A. Bobb, assistant surgeon, Thirty-fourth Michigan Infantry.

Julius M. Wilhelm, assistant surgeon, Thirty-fourth Michigan Infantry.

Dr. George Goodfellow, of California; rendered volunteer service without pay to the wounded after the assaults on Santiago, and to wounded Spanish prisoners at El Caney. He was present with headquarters of the corps and rendered much assistance to the chief surgeon and general commanding.

Dr. Karl Rudberg, fleet surgeon, Royal Swedish navy. Distinguished services in the hospital at Siboney and on the *Iroquois* to Key West.

Maj. Charles P. Nancrede, surgeon of division, General Duffield's command at Siboney.

Contract surgeons who were with the Fifth Army Corps on its landing at Daiquiri and Siboney and during the assault and siege of Santiago de Cuba:

Acting Asst. Surg. W. W. Calhoun, Ninth United States Infantry.

Acting Asst. Surg. H. W. Danforth, Ninth United States Cavalry; fatally wounded July 2, 1898.

Acting Asst. Surg. W. E. Parker, divisional hospitals, Nos. 2 and 3. Yellow-fever service at Siboney and on hospital steamer *Olivette*.

Acting Asst. Surg. John Guiteras. Yellow-fever service at Siboney until July 20.

Acting Asst. Surg. B. C. Leonardi, Ninth United States Cavalry.

Acting Asst. Surg. W. P. Lawrence, Battery G, Fourth Artillery; also yellow-fever hospital at Siboney.

Acting Asst. Surg. R. N. Pitts, First United States Infantry, and in yellow-fever hospitals.

Acting Asst. Surg. Hamilton P. Jones, divisional hospital, No. 1. In charge yellow-fever hospital near headquarters and at Siboney.

Acting Asst. Surg. R. Echeverria, Light Battery D, Fifth Artillery, and in yellow-fever hospital at Siboney.

Acting Asst. Surg. Wilfrid Turnbull, battalion United States Engineers.

Acting Asst. Surg. F. E. Menocal, Second United States Cavalry, Sixth United States Cavalry, First United States Infantry, Headquarters Fifth Army Corps, and among Spanish refugees at El Caney.

Acting Asst. Surg. J. M. Delgado, First United States Cavalry.

Acting Asst. G. Surg. Moreno De La Torre, Tenth Infantry, to June 23. Steamer *Olivette* to —

Acting Asst. Surg. J. A. Tabor, Eighth United States Infantry.

Acting Asst. Surg. T. R. Marshall, Sixth United States Infantry, divisional hospital, No. 1, and among refugees at El Caney and Spanish prisoners.

Acting Asst. Surg. F. J. Combe, divisional hospital, No. 1, and yellow-fever hospital near corps headquarters.

Acting Asst. Surg. Arthur Jordan, Second United States Cavalry.

Acting Asst. Surg. A. E. Wynter, Thirteenth United States Infantry, and yellow-fever hospital.

Acting Asst. Surg. Thomas Y. Aby, Twentieth Infantry.

Acting Asst. Surg. E. R. Bragg, Third Infantry.

Medical officers who joined the command after the assault on Santiago and rendered service during the siege:

Maj. W. G. Willard, surgeon, First Illinois Infantry Volunteers.

Capt. Thomas C. Roberts, assistant surgeon, First Illinois Infantry Volunteers.

First Lieut. C. B. Walls, assistant surgeon, First Illinois Infantry Volunteers.
 Maj. Richard Pyles, surgeon, First District of Columbia Infantry Volunteers.
 First Lieut. S. C. Cox, assistant surgeon, First District of Columbia Infantry Volunteers.

Capt. C. F. Kieffer, assistant surgeon, United States Army, Artillery Battalion.

Maj. E. C. Farquhar, surgeon, Eighth Ohio Infantry Volunteers.

Capt. G. H. Wuchter, assistant surgeon, Eighth Ohio Infantry Volunteers.

Capt. A. V. Smith, assistant surgeon, Eighth Ohio Infantry Volunteers.

Acting assistant surgeons:

A. A. Snyder, divisional hospital, No. 3; Stanley Warren, Ennis Battery; J. Ramsburgh, detention hospital to ———; R. D. Boss, First United States Infantry to ———; J. T. Arwine, detention hospital to ———; J. McV. Mackall, Daiquiri to ———; C. C. Marbury, detention hospital to ———.

2.

[General Orders, No. 8.]

HEADQUARTERS FIFTH ARMY CORPS, *Tampa, Fla., June 2, 1898.*

The following is published for the information of this command:

Suggestions to commanding and medical officers for the prevention of yellow fever, and the preservation of the health of the United States forces in the Tropics, by Dr. John Guiteras, United States Army.

The general hygienic rules for the government of military camps should be enforced. Your attention is called to the following special points:

The use of quinine.—The regular administration of quinine for the prevention of malaria is of doubtful advantage. Quinine, however, should be used when the individual is subjected to extraordinary depressing influences, such as traumatism, exhaustion. Several substitutes for quinine have been used by the Cuban army, but with little effectiveness. The best is probably a decoction of coffee and lemon.

Alcohol.—The excessive use of alcohol is specially deleterious in the tropics. Diluted wines, with the meals, are generally used, and with advantage. Stronger liquors internally, and in the form of frictions, may be recommended after prolonged exposure to wet. The aguardiente produced in the country is used with advantage in slight diarrheal troubles. In the treatment of the later stages of yellow fever effervescing alcoholic drinks are useful, but we can not prescribe the large doses employed in typhoid fever and pneumonia.

Fruits.—We would especially recommend the cocoanut water when the nut is green (may be found throughout the year), the sugar cane (from November to April), the sugar apple (August and September), the orange (during the winter months), and the mango (June and July). The latter fruit should be especially avoided when green or overripe. The sapodilla (May and June), the mammy apple (August), the banana (all the year round), and the pineapple (November and December) are less easily digested and should be eaten sparingly. The alligator pear (July and August) should be eaten with the meals, and not to excess. The tamarind and the ripe guava (the latter most abundant from June to November) are laxative.

The vegetables of the country—the yam, the yuca, the malanga, and the sweet potato—should be thoroughly cooked. Rice and plantains properly cooked are favorite dishes with the natives. They are nourishing and easily digested. I recommend that the method of preparation should be learned from the natives.

Water.—The spring waters in Cuba are usually good and abundant in many sections of the island. Yellow fever is not conveyed in the water, but typhoid fever and probably also malaria, dysentery, and some of the parasitic diseases are transmitted in the drinking water. Unless the water be obtained directly from the springs it should be boiled.

Bathing.—Bathing every day in the running streams is safe, and to be recommended. The best hour for bathing is about 11 a. m.

Clothing.—Light linen or cotton should be worn next the skin. Wool irritates the skin, promotes excessive perspiration, and prevents the cooling effect of evaporation. The danger of chilling by the rapid cooling of the surface under wet linen can be prevented readily by a change of clothing, or by an outer dry garment, or the woolen blouse, when the body is exposed to drafts of air.

The bed covering should be comfortable. Wet clothing and wet feet should be especially avoided during sleeping hours.

The tent flooring.—The hammock may be more comfortable than the floor, and it will certainly afford protection against troublesome insects, but there is no proof that the elevation of 2 or 3 feet from the ground will prevent the introduction into the body of the miasms of disease. If it be not practicable to swing large bodies of troops, there will be found in Cuba an abundance of tall grass that may be used in lieu of straw.

Work.—No exercise or exposure to the direct rays of the sun should be permitted between the hours of 11 a. m. and 3 p. m. The morning hours are the best for marching. The heavy showers and thunderstorms occur usually in the afternoon after 2 o'clock. The mornings are usually clear. Continuous rain storms are cyclonic, and they occur mostly in September and October.

The site of the encampment.—The ordinary rules should govern us in the selection of a camp site. The ground should be high. The prevailing winds are from the northeast, and the slopes of the hills fronting to this quarter should be selected. The privies should be located to the northwest of the camp.

With respect to yellow fever, two important facts should be borne in mind: (1) Yellow fever prevails habitually (so-called endemicity) only in a few and small sections of the island. (2) Yellow fever may be carried to, and when so carried may spread in, all sections of the country. The sections referred to under No. 1 are the populous centers, especially the seaport towns of commercial importance, such as Havana, Matanzas, Cardenas, Sagua, Santiago de Cuba, Manzanillo, Cienfuegos, Batabano. The large towns in the interior that have a free communication with the above are also frequently the seat of epidemics. In the country districts yellow fever is an imported disease.

The troops, then, should be kept, as far as it is practicable, out of the cities, and every precaution must be taken to prevent the introduction of yellow fever into the camps.

The means of conveyance of the disease into the camp will be through supplies, through prisoners of war, through detachments of our troops that may have been forced to occupy infected districts, through the smuggling of things into the camp. Against all these dangers we must institute the rules governing a strict quarantine. Our supplies should come from the north, and if depots for such supplies must be established on the island we should select noninfected places for this purpose. Prisoners of war should be corralled in a place of detention, guarded, if possible, by immune troops. The clothing of the prisoners should be disinfected at once. If no other measures of disinfection are available, we can place much reliance upon fresh air and sunlight, provided the exposure of every piece be complete. The period of detention and observation of these prisoners should extend over seven days.

The presence of a case of yellow fever in a camp is no evidence that the camp is, or that it will become, infected. Yellow fever is not directly transmissible. If the house, the room, the tent where a case of yellow fever is found be not infected, individuals may come in contact with such a case or cases without contracting the disease. Large yellow-fever hospitals have been managed without a single case occurring among the attendants, though these were not immune.

In the detention camps established by the Marine-Hospital Service near large epidemic centers the disease has never spread among the refugees. Of course, a certain proportion of these refugees are stricken down with the disease. They have contracted it in the epidemic center, and when they arrive in camp they are going through the process of incubation. The disease, therefore, breaks out within the first five days after arrival. The permanent residents of the camp—the attendants and the refugees who have been detained in camp longer than seven days—never contract the disease from these imported cases. This means that the camp has not become infected.

The measures taken to prevent the infection of these camps are twofold. (1) The baggage of these people is disinfected immediately upon arrival in camp. (2) A careful watch is kept upon these new arrivals and upon everybody in the encampment. On the first appearance of suspicious symptoms the individual affected is removed to a hospital especially provided for this purpose. The safety then depends upon the prompt recognition of the symptoms and the immediate isolation of the cases.

Our military camps should be divided from the start into two distinct and separate parts—one a main camp, the other a hospital camp. The latter should be situated from one-fourth to one-half a mile to leeward of the main camp.

A few tents should be placed about 100 yards from the hospital camp for the care of suspicious cases in which the diagnosis may be uncertain. This should be called the probation camp.

The hospital camp should be surrounded by a barbed-wire fence, and should be carefully guarded.

Even the hospital camp does not necessarily become infected. Disinfection of the clothing and the dejecta should be instituted to prevent this. The probation hospital should be carefully guarded against infection. When a case has been recognized as one of yellow fever and has been removed to the hospital camp, the walls of the tent should be washed down with a solution of bichloride of mercury, 1:2000, and the ground should be burned by a Barber asphalt furnace. Patients may be returned to the main camp ten days after the establishment of convalescence and after disinfection of the clothing.

If there be evidence that cases of yellow fever have originated in the main camp, it should be moved.

The diagnosis of yellow fever is based upon the following three cardinal symptoms: The characteristic appearance of the face, which may show itself with sufficient distinctness in the first twenty-four hours; and the albumin in the urine, and the peculiar discrepancy between the pulse and temperature. The two latter symptoms may not appear until the third or fourth day of the disease.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

Official.

3. *Memorandum of instructions to the soldiers of the Fifth Army Corps for the preservation of their health in the tropics.*

The body adapts itself readily to changes of climate. You do not require any special preparation for the climate of Cuba. You should meet the heat in the same way that you do in the summer season of the North.

Avoid, therefore, the use of medicines that are recommended to protect the body against the action of climate.

The danger in the tropics does not come from the direct action of the climate. The danger is due to the presence, in some districts of the warm countries, of the microbes of certain diseases. The chief measures for the prevention of these diseases will be instituted by your commanding officers. There are no medicines that will protect us from these diseases.

Do not take quinine regularly when your health is good.

Do not take purgatives when the bowels are regular.

Drink boiled water when you can not get natural spring water. Stagnant surface water is specially dangerous.

If possible, drink water only at mealtime.

The fruits of the country are wholesome when eaten in season.

Avoid unripe and unsound fruits. Peel all fruits before eating. Use as little alcoholic beverages as possible.

The clothing should be light and loose. When wet from sweat or rain, remove it for drying and rub the body briskly with a wet towel until it is clean. Also, if exposed to drafts when perspiring freely, put on some extra covering.

When your feet are wet, rub them dry and put on dry socks, even if you can not change your shoes.

Protect yourself from mosquitoes by gloves and nets.

Bathe your whole body morning and evening if you can, but do not swim in the heat of the day, except under shade.

Sleep in dry clothing only. Otherwise keep awake and move about.

The health of the command will depend to a great extent upon the strict observance of orders not to communicate with suspected persons or places.

Report all sickness to a medical officer at once.

B. F. POPE,
Lieutenant-Colonel, Chief Surgeon, United States Volunteers.

REPORT AND COMMENTS ON SOME OF THE MEDICAL FEATURES OF THE SANTIAGO CAMPAIGN, BY LIEUT. COL. V. HAVARD, CHIEF SURGEON, UNITED STATES VOLUNTEERS.

Wars, like years, succeed, but do not resemble, each other. Not only do they each have special features, calling for special preparations, but the lapse of time works constant changes in the shape, size, and power of projectiles, so that each new campaign opens with problems unsolved and questions unanswered. The one subject about which military surgeons disagreed most—the behavior of the new small-caliber jacketed bullet—has apparently been solved, and solved in a

manner to comfort and cheer all who have labored to render war less destructive and more humane. This new bullet, from which the swift annihilation of brigades and regiments had been predicted, is shown, on a sufficient scale to be conclusive, to cause no more casualties than the large conical bullet of former wars, to cause proportionately fewer deaths (on the field and in hospital), and to give the wounded a much better chance of recovery. Never before have so many wounds healed by first intention, were there so few fractures, and so few operations performed.

At the battle of San Juan Hill, July 1, in which our troops assaulted and captured an almost impregnable position, the total number of casualties was 932 for the 7,000 troops present and under fire, a ratio of 13 per cent—namely, 11 per cent of wounded and 2 per cent of killed. At El Caney the total casualties were about 11 per cent. Among the Spaniards, who fought mostly under cover, the casualties were much under 10 per cent. Our proportion of killed in all the engagements at San Juan ($1,039:145 = 7.16$) was somewhat less than one-seventh of all struck; among the Spaniards it was less than one-fifth.

It would seem that for the purpose of invasion of an enemy's territory by sea, where no harbor can be entered and landing must necessarily be effected in open bay and through the surf, particular attention would be paid to the loading of transports, so that all needful supplies can be readily found, readily landed, and in such shape as to be easily carried into the interior. Concerning this matter, it is notorious that serious mistakes were made, arising from the apparent want of a systematic original plan and from the great hurry and confusion which marked the last days of preparation and loading. As a result, each regiment had more or less of its medical supplies lowered in the hold of its own or some other transport, and mostly inaccessible. Medical officers in dire need of many things stood on the beach day after day making futile efforts to get at their supplies in the holds of ships sometimes anchored only a few hundred yards away. The almost absolute want of means of landing and disembarkation is one of the amazing features of the expedition. There was but one lighter and not a single steam launch with the fleet of transports. Obviously the Navy was expected to furnish help in this respect, and it did at times and places, but was oftener conspicuous by its absence.

A bit from my personal experience will illustrate the situation. On June 29 I transferred the provisional hospital at Siboney to Surgeon La Garde and joined the cavalry division, of which I was chief surgeon. I at once realized the scantiness of our supplies and the impossibility of setting up a division hospital; therefore, on the very next morning, I returned to Siboney with Surg. George McCreery and an order for four wagons to get our medical supplies from the hold of the transport *Rio Grande*. Only one rowboat was available for the service of all the transports. We took passage in it and on the way stopped by the *Mohawk* to let off an officer. A member of the untrained crew, lifting his heavy oar, dropped it upon and through the bottom, so that the boat filled up rapidly and we had to scramble out upon the *Mohawk*. It happened that this transport was without a single boat on which to forward us to our destination, the *Rio Grande*, only 300 or 400 yards away, or send us back to the shore; and the captain, with the selfishness and indifference of many of his class in those troublous days, declined to make any effort in our behalf. It was only after several hours of shouting and signaling that we succeeded in drawing the attention of the lighter, and, after much difficult maneuvering, were rescued and carried back to the beach. The effort had been hopeless. I returned to the front that same evening empty-handed, leaving Surgeon McCreery behind. He succeeded in a couple of days, with the help of Assistant Surgeon Rafferty, in obtaining two wagonloads of supplies, which were a valuable addition to the overtaxed field hospital.

But few ambulances were brought from Tampa. Only three had been landed by July 1, and were available on the days of the fight at Caney and San Juan. They were ably handled by Assistant Surgeon Godfrey, but, in view of the number of wounded, played an unimportant part.

The wounded from San Juan were all brought to the field hospital on the day they were hit or before the following morning; many of them on improvised litters carried by hand. In the evening and during the night a few wagons returning from the front became available, and the sick and wounded were crowded into them in an apparently pitiless manner, but it was either this or else an indefinite waiting by the roadside. All or nearly all of the wounded from Caney were brought in by wagons the day after the fight. If we consider the abominable condition of the roads, the unruly state of drivers and mules, and the great difficulty of procuring the means of preventing jars and jolts, it is not saying too much that the 4 or 5 miles of wheeled transportation from the battlefields to the field hospital cost the lives of not a few patients.

The question of transportation of medical supplies and patients is a vital one, and deserves more thoughtful attention than it has yet received. Reasonably or unreasonably, hardly anything short of perfection is now required from the Medical Department. To meet this expectation, we must accumulate stores on the most liberal scale and be left perfectly unhampered in our disposition of them. In this campaign we should have had a special medical transport ship in command of a medical officer, loaded with all the equipments and requirements of ambulance and field hospitals, and large reserve supplies—everything stowed away in its proper place and readily accessible. Such ship should have two large, stout steam launches and be in all ways independent. It could not be expected to carry ambulances and teams, but it could and should carry a train of, say, 30 picked and trained mules with 12 sets of packs, 12 small two-wheeled carts, and 12 mule litters; the packs or carts, or both, as roads may permit, to carry supplies to the front, and the litters to carry patients. Besides the medical ship, each regiment should have with it the material necessary, including hand litters, for a quick advance to the front, this material not to be stowed away in the hold, but kept above in the most accessible place and under the hand of the medical officer responsible.

Stress should be laid on the fact that ambulances are cumbersome, complex organizations, and (especially in a war of invasion), not available in emergencies when most needed. Pack mules and light 1-mule 2-wheeled carts are indispensable, whether we operate by sea or land. The inestimable value of these carts is not only as a means of transport before wagons and ambulances are available, but also as classified store vehicles, all the contents in their proper compartments and within reach. A large bulk of medical supplies filling up an army wagon is of no use until everything is unloaded and all boxes open; and by that time many bottles will have been broken and much stuff wasted, to say nothing of the time consumed.

As to the transport of patients, the Santiago campaign revealed painful omissions and brought out instructive facts. Hospital Corps men were sadly deficient in number, being (at least in the Regulars) less than 1 per cent of troops in the field, although all previous experience has shown the necessity of at least 3 per cent. This latter ratio should have been reached and organized before the Fifth Corps left Tampa; transfers of combatants to the Hospital Corps after boarding transports and landing upon the enemy's soil were obviously impracticable. It followed that all hospital corps men were absorbed by the field hospitals and dressing stations; and that not a single one was available as litter bearer.

The new regulation hand litter was conspicuous by its absence, having been left behind at Tampa and in the transports. It was hoped that, on account of its lightness and ease of folding into a small portable compass, this litter, in which we all took a just pride, would be available in limitless abundance and in that way make up, to a large extent, for all inevitable shortcomings of ambulances. It was a sad disappointment. Makeshifts of all kinds were resorted to—generally a heavy frame of poles covered with blankets and grass; many patients were thus carried 4 and 5 miles, over miry, deeply gutted roads, mostly at night, and most of them arrived at the field hospital in fair condition, much better than if carried in ambulance or wagon. Each of these improvised litters was borne by from 4 to 6 men, with a few additional bearers for a second relay, and therefore took away from 6 to 10 combatants from the line. One good effect of so many bearers was necessarily to "break step" and reduce the jolting.

In my opinion, the best means of transport, under the circumstances, would have been mule litters—that is, litters carried one on each side of a mule, as first devised by the French and now adopted in all armies but our own. Mule litters must become part of our equipment and will prove invaluable in our colonies.

Of travois, it did not occur to anybody to construct one, and not a single patient was thus carried away. Its construction would have been easy and taken hardly more time than that of a litter. The main difficulty was felt to be the procuring of animals. It would have been greatly to the advantage of patients to unhitch the six mules of a wagon and make them drag travois, but who, in those days, would have had the temerity to propose the abandonment of a single wagon while the whole front was clamoring for food and ammunition.

The regulation litter, wherever used, stood the tests of the campaign in a very satisfactory manner, and shows itself to be well adapted to its purposes. Its weak points are the canvas, which, under any unusual strain, bursts and tears, and the braces, which are liable to warp and break.

The new two-decker ambulance, constructed just before the war, is, in my judgment, such a defective and objectionable vehicle that I need say nothing further concerning it.

It was expected that the long range of the small-jacketed bullet would change some of our ideas of field sanitary organization, and this expectation has been realized. Distance does not now count for so much, while shelter counts for a great deal more. We may even go further and say that distance may distinctly increase the danger. The advance of large bodies of troops, like brigades and divisions, in formation of attack, has become more difficult. There is an instinctive, irresistible inclination to take advantage of all possible shelters, and this results in the breaking of the originally continuous line into more or less separated groups of battalions and regiments. This breaking or fragmentation of long lines becomes a matter of life and death, when, as at El Caney, a prolonged siege is maintained against an enemy having every advantage of position. Under the withering fire of an intrenched foe general officers lose their hold on the advancing line, and at the critical moment regimental officers must often take the final and decisive action, each one according to the conditions confronting him.

The deduction, so far as the medical department is concerned, is that each regiment in battle must be provided with proper medical personnel and material, and be more or less independent. The advice of modern writers to concentrate all supplies behind the brigade as a unit is not borne out by the experience of this campaign. Of course this regimental organization is only suitable for the battlefield and does not apply to the camp, where division hospitals very properly absorb most of the functions of the regimental hospitals.

The best place for regimental dressing or collecting stations will be the nearest place to the line of fire at which sufficient shelter can be had; such place will often be only a few yards back of the firing line, the latter being almost always along the crest of a hill or a rise of ground. The farther back we go the more exposed is the station to drop shots and the less useful it becomes. If there be no shelter in the immediate rear and it is necessary to pass over any large area swept by the enemy's fire to carry the wounded to cover, the removal of the latter becomes very questionable; chances must be balanced and opportunities taken advantage of.

I used the name "regimental dressing or collecting station," thus conveying a specific idea, which may be, and often is, a wide departure from the facts. The *raison d'être* of a station is primarily its convenient location and safety, much more than the particular organization in its front. Thus, in the attack on San Juan Hill, only one station was established, although several regiments were under fire, because there was but one available place (at the "Bloody Bend," under the low bank of the San Juan River). It was a poor place, not even safe, but the only available one, and Assistant Surgeon Newgarden did wisely in locating it there, without regard to the position of the troops in front and rear of it.

After July 1, when our troops had carried the heights of San Juan, the "Bloody Bend" was no longer exposed to direct fire, but was still in danger from drop shots fired at least a mile away, and from sharpshooters. As patients continued to be brought there, and it was the farthest point ambulances could reach, it was thought best to retain it another day.

Meanwhile, other dressing stations were being established in the immediate rear of the firing line, not far below the crest of the hill and consequently in tolerably safe positions. It was recognized that one station may answer all the needs of a brigade; thus, a road led up to the rear of the Third, Sixth, and Ninth Cavalry and in a deep, hollow part of it Surgeon Harris established for the whole brigade a station which was comfortable, almost absolutely safe, and easily approached by ambulances. The First United States Volunteers (Rough Riders) and the Tenth Cavalry likewise joined forces and placed their station in a tolerably safe spot at the foot of a steep spur. The First Cavalry, being separated from the latter by a large exposed basin, required a separate station, which it shared later with two or three artillery batteries. Here natural shelters were very imperfect and a good deal of digging was required. In the same manner, stations were established all along the line, each corresponding to one, two, or three regiments, and sometimes to regiments of different but adjoining brigades.

According to books, each division of troops should have at least one ambulance hospital (ambulance station) 2 or 3 miles in rear and a complete, well-appointed field hospital 2 or 3 miles still farther back; but actual war is no respecter of theory and often upsets all our preconceived ideas. One field hospital was established near General Shafter's headquarters, 2 or 3 miles back of El Poso, and up to the time of the surrender remained the only one, and the only hospital organization of any kind in rear of the dressing stations, 4 miles away. Efforts were made to find another suitable place, but without success, owing to the facts that the country operated in was one vast jungle, with but few small clearings, and that there was but one road to the front. The only intermediate station was one improvised

under a grove of large trees near El Poso. Here much good work was done by the medical officer in command. Walking patients rested, received stimulants, and, if necessary, were placed in wagons impressed for the purpose; all litters were stopped and the patients carefully examined, but without meddlesome handling of the dressings; patients in wagons were given more comfortable positions; several tourniquets twisted tight, probably too tight, at the dressing station were loosened to the great comfort of the patient and the possible avoidance of serious injury. The application of tourniquets on the line of fire, immediately after the receipt of a bleeding wound, must be useful, but further back it is of very doubtful utility, and it will always be wise, if circumstances permit, to examine and loosen tourniquets in transit to the field hospital.

It is safe to conclude that, in future wars, the necessity for immediate operations being less and the patients able to stand longer transportation, less stress will be laid upon the importance of the ambulance station, which will generally be merged into the division or field hospital. It will be enough to have an "observation station" to see that all patients in transit are in the best condition possible to reach the hospital safely.

It is not my purpose to discuss matters pertaining to the field hospital; this I leave to others more directly interested and better informed, but the work in first aid done along the line should not be left unnoticed. Little dressing material had been taken to the front. Fortunately, first-aid packets were plentiful. Medical officers had succeeded in impressing upon many officers and men the necessity of carrying these packets, and along almost every part of the line they could be had in sufficient quantity and were invaluable. Probably never before have first-aid packets played such an important part in the treatment of gunshot wounds. Our surgeons and hospital corps men had hardly anything else, and, in truth, did not need much else. Let the surgeon of the next war provide himself with plenty of first-aid packets, wire splints, a small case of instruments, rubber tourniquet, and a bottle of stimulant, and he is suitably prepared for all the eventualities of the firing line and dressing station.

The packet being of such vital importance, its composition should be carefully studied. We know how much depends upon the proper application of the first dressing and the necessity for leaving it undisturbed until special indications call for a reexamination of the wound. This first dressing is made easier and more successful with large compresses, say twice the size of those now in use. Compressed cotton, containing an antiseptic powder, and which can be readily spread out, would, I think, prove a much better material than gauze.

Diagnosis tags were not generally used. Many of the surgeons who were provided with them failed to appreciate their value, thinking that when minutes are so precious tags do not matter. From my own experience of the tags seen in front, on the road, and at the field hospital, I am more than ever convinced of their great utility (under an improved form) and would urge that no dressing be considered complete until the tag is pinned on.

After the surrender of Santiago, when the troops had selected the best sites for their camps, and tentage was abundant, each division set up a hospital of its own, the overflow from which was received into a large field hospital established at a central, readily accessible point. In addition to these, each regiment had also a few hospital tents for its milder cases. This organization appeared to be the best possible under the circumstances, and gave excellent results.

In closing, one is naturally prompted to call attention to the excellent, nay, admirable work of our surgeons along the line of fire. I never heard that any medical officer had shirked his duty because of danger, or failed to help a patient that he could reach. I was specially well situated to see the first-aid dressing applied to the wounded under fire, on June 24 as well as on July 1 and 2, and could not help admiring how carefully and effectively the compresses and bandages of the packet had been applied in a majority of cases, as well as the improvised splints in fracture cases. Very few patients reached the field hospital with wounds unbound and unsupported.

REPORT OF MAJ. LOUIS A. LA GARDE, SURGEON, UNITED STATES ARMY, ON
THE OPERATIONS OF THE "BASE HOSPITAL," AT SIBONEY, CUBA.

[Dated October 31, 1898.]

Origin of the hospital.—The hospital was the outgrowth of a field hospital which I was ordered to establish in accordance with paragraph 2, Special Orders, No. —, dated Headquarters United States Forces, Tampa, Fla., May 3, 1898, for

the accommodation of the troops serving in Port Tampa and vicinity. The troops serving on the ground were composed of the Ninth Cavalry and the 10 light batteries of the artillery arm. These troops were not brigaded; each arm was commanded by its ranking officer, independently.

The hospital was established as is contemplated in our scheme of organization, by calling in all property and personnel, except such minimum allowance as might be required by the battery and regimental surgeons at sick call. In the manner mentioned we found ample supplies of all kinds for the immediate needs of the command. There were 9 medical officers, 1 hospital steward, 11 acting stewards, and 35 privates of the hospital corps for duty.

As time passed during the month of May, it became more and more certain that the troops serving about Tampa would be organized into an expeditionary force for the early invasion of Cuba. The exact time for the latter was always a matter of doubt, still the officers in all the departments worked faithfully to complete and perfect their organization with the view of placing themselves and those under them on a war footing. About the middle of May I was informed that the field hospital at Port Tampa would be designated as one of the divisional hospitals of the Fifth Corps. I never knew until June 8, the day of embarkation, that it would be known as the reserve divisional hospital. When the object of the hospital dawned upon us, we proceeded in earnest to supply it accordingly. By this time the matter of obtaining medical supplies had become very much simplified by the establishment of a medical supply depot at Tampa, from which we obtained all the necessary medicines, dressings, some stores, especially stimulants, bedding for 200 men in the event of battle or other necessity. The necessary amount of tentage, a thoroughly equipped ambulance train of 10 ambulances, and mounts for 56 members of the Hospital Corps were obtained by timely requisitions upon the different departments. First Lieut. and Asst. Surg. James M. Kennedy was appointed ambulance chief, and it was largely to his indefatigable efforts that the train was placed in condition for field service in such a short space of time.

Orders to embark on transports with the rest of the Fifth Corps were received on June 6. The hospital, consisting of the following personnel and supplies, was loaded on the steamship *Saratoga* on the 8th: Three medical officers, 1 steward, 2 acting stewards, 17 privates of the Hospital Corps; tentage, bedding, medical supplies, and stores, as already stated, for 200 men. The stores, with the exception of stimulants, were insufficient. We trusted to the commissary, which carried an abundance of milk, soups, and other delicacies for the sick. Our deficiency in medical officers and personnel generally was painfully apparent, but the hurry and confusion of throwing a large army in the field so suddenly made this unavoidable. Our large number of members of the Hospital Corps, which at one time aggregated 69 men, had been reduced from time to time by demands from the corps surgeon to supply deficiencies elsewhere. At the last moment we were informed that the ambulance train and mounts for the Hospital Corps could not be taken, presumably for lack of transportation. The train was left encamped at Port Tampa, under command of Assistant Surgeon Kennedy, to be shipped at some future time. Request was made of the chief surgeon Fourth Corps not to disintegrate the train unless it should become absolutely necessary. I am happy to state that the request was strictly complied with.

Aside from the reserve divisional hospital, the steamship *Saratoga* was loaded with the Thirteenth Infantry and one battalion of the Twenty-first Infantry, Lieutenant-Colonel Worth, commanding. The voyage to Siboney, our place of landing, was long, tedious, and marked by many weary delays. The command was on board ship nineteen days before disembarkation took place. The overcrowded condition of the ship for a long voyage, the inadequate ventilation and heat between decks, the hot, blue woolen uniform, and the sameness in the diet of the travel ration had begun to tell on the strength of the men, whose resistance had been correspondingly lowered for the exigencies of an arduous campaign in the tropics, out of season.

The comments I may have occasion to make in this report are not employed with a view to criticize the conduct of my superiors. I believe we should all be mindful of the fact that the conduct of a war in the tropics is to us a new business, and that we were apt to make mistakes, which are now generally admitted. It is by a candid admission of certain facts that we can the better prevent such errors in the future. I believe that the overcrowding on the transports on the way to Cuba had much to do with subsequently reducing the effectiveness of the command. I am of the opinion that we erred in allowing ourselves (1) to believe that we were attempting a short voyage, and (2) we erred in estimating the carrying capacity of our vessels by the rule observed with the British troopships of "a man to 1½ tons, an animal to 2½ tons." This rule is applicable to ships with clear between decks, especially constructed for the transportation of troops, like those

possessed by England; but it is not in any way applicable to the passenger and freight steamers fitted up with tiers of bunks, composing the fleet which carried us across. In the vessels built for the purpose with clear between decks the space is occupied during the sleeping hours by men in tiers of hammocks. During the day the hammocks are taken down, thereby increasing the superficial area.

I was ordered by the adjutant-general of the United States forces near Tampa, by letter dated May 8, to inspect certain transports then lying at Port Tampa. The letter was accompanied by a memorandum estimate of the carrying capacity of the transports. It was at once apparent that the carrying capacity had been largely overestimated. For instance, if we take the *D. H. Miller*, by the memorandum, which was based on "the ton and a half rule," we find that its reputed capacity was 1,116 men, while its actual carrying capacity, as determined by due regard to superficial area and cubic air space, was found to be but 341 men. The latter figure agreed exactly with the judgment of the captain as to the capacity of his vessel, and the same may be said of the other captains of vessels when the figures obtained by the two methods were shown them. They invariably admitted that the tonnage rule could not apply, except for an extremely short voyage.

After the command had been loaded upon the transports, June 11, prior to sailing, there were many complaints of overcrowding on the *Saratoga*. On the latter date I stated as follows: "As an instance of overcrowding, * * * the vessel that I am on gives but 77 cubic feet per capita in the after part (aft between decks), where tiers of bunks have been erected. At two inspections last night the heat and fetid condition of the air was intense. The men lay in their bunks naked, fanning themselves with their hats. Such a condition of overcrowding is not justified, except for a short voyage, not to exceed twenty-four hours. There are six cases of fever that have developed in the last thirty-six hours." We succeeded in having two of the companies of the Twenty-first Infantry removed to another transport. Still the overcrowding was in excess for anything except a very short voyage.

In a report to the assistant adjutant-general, Third Brigade, First Division, Fifth Army Corps, dated off Santiago, June 20, 1898, a report required by the manual (Troops on the March and in Campaign), I again touched upon the subject of overcrowding. "The practice of harboring men on these transports in tiers of bunks between decks is pernicious in the extreme. * * * As the floors are required to be washed once per week, the dampness that ensues for the want of aeration lasts two and three days. The bunks deprive the men of the superficial area upon which to move about in the day, to say nothing of their infringement upon the cubic contents. The bunks are superimposed in tiers of three double bunks with passages between so narrow that two men can scarcely pass each other. * * * Two cases of measles and 13 cases of fever from heat and exhaustion were noticed." As stated before, the men on the *Saratoga* were cooped up in this manner nineteen days, which lacks a great deal of being a short voyage.

The troops disembarked at Siboney on or about June 26. On the latter date I went on shore with the corps surgeon and the surgeon in chief of Admiral Sampson's fleet. We walked the ground over carefully in our endeavor to find a site for a hospital. Troops were quartered everywhere. Camp sites were limited, there were no sinks, and the stench from dried and recent human excreta overpowered the senses on all sides. The population and houses comprising the town of Siboney had but little to recommend them better than the ground outside. The vicinity just north of the landing was marked by a number of sloughs, which precluded its use for a hospital site. The region to the east was rocky and marked by high hills. To the west lay the site of Siboney, well drained, but rather contracted. The subject of burning the town down to prevent any possible infection from yellow-fever, and to allow more available space was discussed and repeatedly urged. The fleet surgeon stated that this had been done by the Navy at the point of landing at Guantanamo. The wisdom of such a step was brought to us very forcibly afterwards.

We commenced to unload the hospital the next day, the 27th. We had but 17 members of the Hospital Corps, and 3 small boats to move our stuff, which in bulk amounted to one and a half carloads. The *Saratoga* lay 300 yards in the stream, the surf was high. The plan was to have a detail to load on the ship, and when the boats were loaded, to row one and tow the rest to shore, where another detail proceeded with the tedious work of unloading. The surf being high—there were no docks—the small boats could not be gotten nearer than 15 feet from shore, so that it was necessary for the men to walk in the water waist deep for the property, which was placed on their backs and carried to the beach. It was not possible to land much property in one day under such circumstances; still we continued to work in this way, as the only means at our disposal, until orders were

finally issued to place the property on one of the lighters, while Colonel Weston, the chief commissary, very kindly unloaded it for us.

The hospital site on Siboney's water front was about a half mile from the landing, to which all the property must be carried by human muscle. Large details were obtained for the purpose from the commanding officer at Siboney.

About 80 patients with wounds, measles, heat stroke, fever, etc., were quartered in an old store under the care of Maj. V. Havard, United States Army. As Major Havard's division had gone to the front, the hospital was turned over to us. Capt. M. W. Ireland was placed in charge, while I busied myself transferring the property from the landing, superintending the pitching of tents, and the arrangement of a record room and dispensary. Assistant Surgeon Fauntleroy was placed in immediate charge of all arrangements pertaining to the operating room. His fertility in resource—in making something out of nothing—may be mentioned in part herewith; tubs for slops, and bichloride solutions were made out of barrels and kegs sawed in two; glass demijohns of 3 and 4 gallons capacity, found in a store near by, were utilized as jars for sterilized water and antiseptic solutions; operating tables were made by placing litters on the frames of bunks from an old Spanish barrack. These bunks were higher than common, and they answered the purpose very well when covered with a rubber cloth.

Tables were taken from the offices of the Juragua Company's offices and other buildings, to hold dressings, instruments, etc. The water main of the little town was tapped opposite the operating room so that water was provided in abundance. With few exceptions our assortment of instruments was liberal, having provided ourselves from Fort Robinson, upon taking the field; and later when Dr. Fauntleroy joined us at Port Tampa, on the eve of sailing, he brought a large assortment. In this way we had instruments sufficient to supply six tables very nearly. A few instruments were furnished by Major Nancrede, United States Volunteers, and Dr. Lesser, of the American Red Cross Society. The vexed question of sterilizing dressings in the field was overcome by the abundance of clean dressings so handsomely prepared by the makers, and abundantly furnished by our department.

On the morning of July 1 we were ready for the reception of 200 wounded. We soon learned that an advance of our line had been ordered and that the troops were engaged in battle. Our base was practically stripped of soldiers. The Thirty-third and Thirty-fourth Michigan regiments, under General Duffield, who commanded at Siboney, had been ordered, on the night of June 30, to make a demonstration on Aguadores, on the left of our line, along the Juragua railroad, 8 miles to the west. His command, which was entirely composed of infantry, fared badly in running upon some batteries which poured shell and shrapnel into it, causing a rather precipitate retreat. A train bearing 2 dead and 7 wounded steamed in front of the operating room, accompanied by Majors Nancrede and Vaughan, shortly after noon. The wounds were caused by fragments of a shell, necessitating two amputations, one of the forearm and the other of the thigh. Later in the day some of the less severely wounded commenced to arrive from the main line. Their reports of the extent of our casualties were necessarily inaccurate and conflicting. At about 10 p. m., a teamster road into camp on one of his mules, stating that a train of 8 wagons of wounded was blocked on the road to our advance, 4 miles away, and that men were needed to extricate the wagons from the mud.

I proceeded with the teamster to obtain an order from General Duffield for a detail of men. Before the detail had time to reach the sufferers they had received assistance from some other source. They reached the hospital at about daybreak. Many of the wounds had to be re-dressed. The injuries were not severe, as a rule. We busied ourselves in providing beef tea, coffee, etc. I regret to say that our outlay of delicacies was very limited. As stated already, we had depended for condensed milk, soups, oatmeal, lime juice, and other delicacies, upon our commissary department, which was well provided with such articles of light diet; but, for the lack of facilities to land, these articles were still on the transports. The landing of the troops was done in such a precipitate manner that ammunition and the bare ration of the soldier seemed by military necessity to be the first consideration. It was at this time that I remembered the offer of the honorable Clara Barton, president of the American Red Cross Association, through the corps surgeon, to assist us in any way she could with supplies and help from the *State of Texas*, which lay at anchor near our landing. I desire to testify herewith to the loyal manner in which this promise was kept.

While the wounded for four days kept crowding into our hospital faster than large details of men could provide them with canvas shelter, Miss Barton's assistants worked unremittingly with us to relieve the pangs of suffering humanity. They furnished us, with willing hearts and willing hands, delicacies like gruel,

malted milk, ice, soups, etc., when military necessity prevented us from getting our own. As the wounded crowded upon us in numbers far beyond anything we had reason to anticipate, they came forward with cots, blankets, and other articles for the comfort of the unfortunates. For such help at a moment of supreme need, coming from people in no way connected with the military service, the deep sense of gratitude, not only of the medical department, but of the whole of the Fifth Corps, can not be conveyed by words. I desire to emphasize our gratitude in this manner because efforts have been made to make it appear that the medical department was not mindful of the extent of the services rendered; and, again, there are those who have attempted to minimize the efforts and preparations of the medical department of the army, while in their opinion, the bulk of the credit in the care of the wounded at Siboney belonged to the Red Cross Association. As far as my personal knowledge extends, the officers of the Red Cross Association are not responsible for such impressions. They are willing to accord to the medical department due praise for the work it had to accomplish under great difficulties. They understood the military situation which governed in the premises, and saw, as we did, our helplessness, for the time being, at least.

The actions of the 1st, 2d, and 3d of July, as already stated, crowded our hospital to overflow. In addition to canvas shelter, a railroad shed was used for cases of measles. A small cottage containing about 20 beds was turned over to the Red Cross Sisters, under Dr. Lesser, for wounded officers and men, and the large cottage, known as the Garcia headquarters, was used as a fever hospital, under Maj. John Guiteras, surgeon, United States Volunteers. The latter, who was the yellow fever expert of the expedition, had inquired into the history of the last two of these buildings, and, from reports made to him by the Cuban population, he was reasonably sure that they were free from infection, which opinion, we regret to admit, was far from correct, as the sequel will show.

At the same time that the kitchens were preparing diets day and night and that men detailed from the regiments were helping the regular Hospital Corps men to care for the wounded, the operating room was the most active part of the hospital. On the 2d of July, Drs. Nancrede and Fauntleroy, of the operating staff, requested me to ask the Sisters of the Red Cross to assist at the operating tables. The second day of work had convinced us that we were very much in need of those having special training in operating-room technique. The few men we had possessing the qualifications necessary in this department were not able to satisfy the wants of the five and six tables that were running constantly, day and night. Accordingly I applied to Dr. Lesser for the Sisters, four in all, I believe. I also extended Dr. Lesser an invitation to assist in the operating room. We thereby received the benefit of their skill during the rest of the work which followed for the next few days.

After the services of the Red Cross were no longer required in the operating room, the worst cases among the wounded were placed in a ward over which Mrs. Lesser and her assistants ministered to the needs of those who required special nursing. In addition to the services of the Red Cross people, I desire to mention the names of Lieut. Col. Phillipe Varanes, assistant surgeon-general, Cuban army, also Surgeons Lewis, Elliot, Smith, and Spear, United States Navy, from the *New York*, and Dr. Karl Rudberg, royal staff, Swedish Navy. These surgeons, with Majors Nancrede, Vaughan, Captain Ireland, First Lieutenant Fauntleroy, and Acting Assistant Surgeons Parker and Lawrence, United States Army, formed the operating staff of the hospital. As the members of the operating staff became exhausted from overwork, their places were taken at different times by Major McCreery, Captain Winters, First Lieutenant Smith, United States Army, and others who were ordered by the corps surgeon as assistants. Later, upon the arrival of the hospital ship *Relief*, Lieut. Col. N. Senn, chief surgeon, United States Volunteers, and Acting Asst. Surg. Harry S. Greenleaf, gave us assistance. Our only regret was that this distinguished party had not been with us earlier. When the surgical work was completed, Colonel Senn busied himself in other fields. In the sanitary department he inaugurated reforms that proved of great value.

On the evening of July 4 the hospital contained over 500 wounded men and officers. Such a number so far in excess of our calculations, which, as was shown afterwards, was but a fraction of the number yet to come, was naturally appalling. The military surgeon is nearly always at a loss to estimate beforehand the probable casualties on the eve of action, since his knowledge of the battle tactics are too often limited by the military commanders, who keep their plans to themselves. Aside from these difficulties, common to all battles, the operations about Santiago presented unknown problems of a highly interesting character to all military men. For the first time in the history of the new armament two large opposing armies were to contest the ground between them with the hand weapons of reduced

caliber employing smokeless powder. Although much has been written upon the casualties of battle to be expected under such circumstances, the opinions of men amounted to little more than theories prior to the operations in question.

If one will take pains to run over Longmore's tables on the subject he will find that the casualties in war have not kept pace with the improvements in firearms, and this is especially true of the period which marks the evolution of the rifle from the smooth-bore gun. The reason is plain enough since troops in the days of the flintlock weapons, having a maximum effective range of 80 yards, advanced upon each other in close formation. The casualties under such tactics were apt to be larger than subsequently when additional range, flatter trajectory, and penetration were conferred upon the projectiles. The change of warfare in late years has really been a race between the scientific gun makers and the tacticians. As the former added range and penetration to their weapons, the latter sought to thin out their ranks—to fight in extended order—for the purpose of lessening the casualties incident to superior ballistics. The action near Santiago was about to furnish the first opportunity for an actual test of the new battle tactics with the small-bore rifle.

The opposing armies were about equal in number. They were armed with virtually the same gun. The arm of the Spaniard—the improved Mauser—has some advantages in penetration over those of the Krag gun, but they are so very slight that they need not be considered in battle. The wounds which the two guns inflict are practically the same. Writers upon the effects of the new armament in battle have estimated the results quite differently. Some have maintained that the new arm would be more deadly—that is, that the usual ratio 1 to 4 or 4½ between the killed and wounded would be materially altered; that henceforth there would be one killed for every 2, or possibly 3, wounded. But few have maintained the opposite condition. There are those, again, who have argued that the percentage of the wounded to the number of troops engaged would be less than heretofore, owing to the extended order, except in those rare instances when troops should be more or less massed to assault fortified positions, at which times the casualties would far exceed those with the use of the less effective weapons. I have written at length on this subject to show the additional reasons which served to mystify the surgeon in basing his calculations on the estimate for supplies and personnel, and especially the distribution of the latter. Had it been known beforehand that the battle about Santiago must consist of dislodging infantry armed with Mauser rifles, intrenched in well-fortified positions, with no artillery preparation on our part, and that the approaches to these positions must be along narrow paths—death lanes—it would have been in order to put the bulk of the relief corps at the collecting stations and well to the front.

The transportation of the wounded in escort wagons was attended with much suffering and inconvenience until the unloading of the ambulance train, which we had left, as stated, at Port Tampa, under Assistant Surgeon Kennedy. The train arrived on the *Louisiana* and commenced to unload at Daiquiri on July 1, the day of the battle. Two ambulances reported to me on the same day and were hurried to the front that night. The rest of the train was unloaded by July 3. As the ambulances were unloaded they were hurried to me, and I, in turn, dispatched them to the front with such medicines and dressings as were needed. This train continued to do invaluable service, day and night, in transporting the wounded and afterwards the sick to the hospital at Siboney until about August 1.

The lack of skilled nurses in the care of the wounded and sick was one of the chief troubles at the base. The volunteer organizations left as guard did as well as they could to assist us. Some of their men had received training in first aid, but the proportion was too small to result in much benefit. Even this help, as unsatisfactory as stated, could not be depended upon. Military necessity often deprived us of it at the very time we needed it the most. From one to two companies of infantry were constantly required for the proper policing, guard, to assist in nursing, etc.

On July 7, after one company of infantry had been distributed for the night among the various wards, which contained nearly 500 wounded, a sergeant came to the hospital, and, without reporting to the surgeons on duty, passed the word down the rows of tents "that the company should assemble at its camp at once." The surgeons became aware of our plight at about 9 p. m. Upon inquiry I was informed by the commanding officer that the troops had all been ordered for out-post duty. The surgeons and the day nurses, already worn out with watching, had to care for the distressed the rest of the night. I made repeated endeavors to obtain larger and more permanent details, but to no purpose. Finally the arrival in camp of Col. Charles R. Greenleaf, United States Army, chief surgeon in the field, had the effect to clear matters. The whole of the Twenty-fourth Infantry was ordered from the front to assist us. The discipline of these seasoned troops

changed the aspect of affairs at once. For the first time in the history of Siboney order loomed out of chaos.

During those days of uncertainty as to help and lack of sufficient quantity of supplies from the 1st to the 8th of July, for causes already mentioned, I wish to record the many acts of kindness of the gentlemen of the press in our behalf. Mr. Lyman, president of the Associated Press, furnished us ice and delicacies often. Mr. Hearst, of the New York Journal, sent us ice by the ton, and gave us the use of his steam launch to tow the wounded to the transports and to bring supplies to shore when it was impossible to obtain other transportation. The spirit of humanity which prompted these gentlemen to come to our assistance, so regardless of their own interests, was beautiful.

The work of Capt. E. L. Munson, adjutant, of the medical department, Fifth Corps, in unloading supplies from the different transports, from the 1st of July to the 4th, supplied many deficiencies which must have persisted without his excellent efforts.

Although we might have done better with transportation of our own, and though the disappointment because of our inability to get at all of our supplies was bitter and exasperating in the extreme, we managed to care for the wounded, with no special amount of suffering, until the arrival of the hospital ship *Relief*, August 8. This vessel, so well equipped for the work at hand, was laden with 1,000 cots, and everything in the way of hospital supplies in quantities to correspond. Our hospital then assumed other functions besides the care of the sick and wounded from the front. Paulins and flies were pitched to receive this veritable purveying department. Captain Ireland was placed in charge of all supplies, and it was to his admirable method of systematizing his difficult task that the different hospitals and camps of the army were supplied by rail, ambulance, and wagon trains.

Knowing that we were at the place where the relief ships would first touch, the orders were at all times to send to the different points all supplies asked for. When we had run so low at one time that the wisdom of our liberality seemed questionable, the steamer *Resolute* hove in sight to supply all impending deficiencies once more.

The character of wounds.—The wounds inflicted by the improved Mauser did not differ from the wounds of the reduced caliber weapons generally. They correspond to the wounds inflicted with the new arm by experimenters on the cadaver, dead and living animals, as well as those heretofore noted on man by accident and in war. The explosive effects so often noted in wounds at close range were not seen, for the reason that none of the wounds were received within the zone of explosive effects, which, under some conditions, though rarely, may extend to 500 yards. Those organs containing tissues rich in fluids, incased in cavities with bony walls, are more apt to show these highly destructive effects. The absence of these ugly wounds was often commented upon by surgeons. It is safe to say that examination of the dead on the field could have shown evidences of explosive effects in the wounds of the head, the heart, liver, spleen, intestines, etc. In reckoning upon explosive effects one should always remember the factors upon which they depend. To be brief, destructive effects are commensurate with velocity and sectional area of the projectile on the one hand, and with resistance in the body on the other. High velocity, greater sectional area, and greater resistance exhibit explosive effects, and vice versa.

It should also be borne in mind that only two things offer resistance in the body, viz, (a) compact bony tissue and (b) water. The fractures of the long bones were attended with but little comminution, and in quite a number of instances with guttering and perforation unattended with fracture. More than a score of gunshot wounds of the kneejoint were treated by immobilization and simple dressings alone with the happiest of results. Injuries of the joint ends of bones were invariably marked by clean-cut perforations. The injuries of the soft parts were comparatively trivial. Wounds of the head involving injury to the brain matter had to be opened up on several occasions on account of sepsis. The skullcap invariably showed fissures radiating between the wounds of entrance and exit, and islands of bone, sometimes free from dura and periosteum, but more often attached. All wounds of the lungs were recovering rapidly without apparent complications when received in hospital. The wounds that astounded us all were those of the abdomen. Four were noted of such wounds which, from the anatomical regions traversed, must have involved the caliber of the intestines numbers of times, and yet recovery had taken place with no apparent sequelæ or ill effects of any kind. These cases were very wisely kept at the field hospitals, well to the front, until recovery was assured. Capital operations, such as amputations and opening of the larger joints, were done but seldom, and then only for

sepsis, which, in the nature of things, would seem to be unavoidable in war in a certain proportion of cases.

Another circumstance which rather puzzled us was the frequency with which lodged balls were seen. This was variously attributed to (1) defective ammunition, (2) ricochet shots, and (3) long range. By testing the penetration of the two ammunitions in blocks of yellow pine, Capt. Charles A. Worden, United States Army, was able to demonstrate for me the fallacy of the first of these theories. The Spanish ammunition penetrated as much as 9 inches farther in the wood than ours, a fact which is not surprising, since the muzzle velocity of the Mauser is greater than that of the Krag-Jorgensen, and since, also, the sectional area of its projectile is slightly less. The lodged balls were evidently due, therefore, to ricochet shots through the thick underbrush and to long range. Acting Asst. Surg. W. E. Parker visited Santiago late in July to confer with the Spanish surgeons upon their observations concerning the character of the wounds from our guns. He informs me that their conclusions tallied with ours in every respect. They remarked especially on the number of lodged balls, which they attributed to long range, and the number of recoveries from gunshot wounds of the abdomen with undoubted intestinal perforations.

When we contrast the ravages inflicted by leaden bullets of large caliber with the humane effects of the projectile of reduced caliber noted in this battle, it is not extravagant to say that the portable hand weapons of to-day have largely reduced the subject of military surgery to first-aid work.

Although the operating staff was occupied for a period of five days of incessant work in the operating room, the surgical work consisted principally in the redressing of wounds. The number of operations of all kinds was very small.

Yellow fever and the burning of Siboney.—On July 11 we had cleared the hospital of wounded by shipments north, and by the restoration of a few light cases to duty. The negotiations for the fall of Santiago were pending; still, our experience of a few days back convinced us that another battle of infantry, pitted against infantry with the new arm, must give in this instance a large casualty list to the attacking army. Our efforts were, therefore, directed to meet the exigencies of such a contest. More tents were pitched and wards were arranged in order for the reception of the wounded. Fortunately our apprehension in this direction was not realized. Yet there was a foe at work which was soon to put our resources to the severest test. About July 6 Maj. John Guiteras, our yellow-fever expert, reported that he had a suspicious case from our advance post near Aguadores Bridge. The admissions from yellow fever very soon multiplied day by day, and we at once established a detention station near the fever hospital in the old Garcia headquarters. In a very few days cases from the front commenced to arrive. The cases became so numerous that a yellow-fever camp had to be established on the railroad to Firmesa, 2 miles to the east.

To augment our difficulties, it was discovered, about July 9, that the buildings occupied as hospitals, dwellings, and offices in Siboney were recognized as sources of infection. Men of the Signal Corps, who had never gone away from the base and who lived in the offices of the Juragua Iron Company occupied by us as a telegraph station, were taken ill with the disease. Surgeons and nurses were taken down in the Garcia and Clara Barton hospitals. The wisdom of occupying these buildings for any purpose had always been a matter of doubt. We deferred all questions of this kind to Dr. Guiteras. The reports to him from the Cuban physicians were most positive that the houses were free from infection and that yellow fever had not prevailed in the buildings which we were induced to occupy. I believe that the reports were probably true with regard to the non-susceptible Cuban population. For the susceptible American, it is doubtful if any part of Cuba in the vicinity of our base was safe. Infection is not only prevalent in the habitations; it is to be met with in the shady nooks about rocky recesses, caves, arbors, etc.

At one time two regiments—the Twentieth Regulars and Thirty-third Volunteer Michigan—led in the number of admissions from yellow fever. The latter regiment was then encamped on ground such as I have described, recently vacated by one battalion of the Twentieth, while the rest of the regiment was encamped on more open ground. Reference to the hospital records showed that the battalion of the Twentieth Infantry, composed of Companies A, E, F, and H, furnished all the cases of yellow fever from that regiment except one, the latter coming from that part of the regiment camped in the open. This is certainly convincing evidence with regard to the common origin of the disease in the two regiments, especially as the Thirty-third Michigan had camped nowhere else.

The destruction of the town of Siboney by fire seemed to be a matter of absolute necessity. In thus destroying this dirty little town, we were, at least, sure of

limiting the number of new cases about us, and, as already stated, we needed the room to extend our canvas hospital, which was from the beginning on very contracted premises. Accordingly, on July 9 a formal request was made to headquarters at the front for the necessary authority. The authority was granted on the 11th and the buildings in West Siboney were burned on the 12th. The remainder of the buildings, with the exception of the railroad shed and a sawmill near the landing, were similarly destroyed as soon as vacated.

The accessions of malarial and yellow fever cases from the front continued until July 31, on which date 90 cases were admitted by transfer from Dr. Jones's hospital. By July 20 yellow fever had developed so rapidly among the patients in hospital and the overflow in the detention camp was so far in excess of our ability to accomplish transfers to the yellow-fever hospital that we were compelled by the universal presence of the infection to declare everything in the way of a canvas hospital about us a yellow-fever hospital. The lines which had heretofore defined the yellow-fever hospital from the detention camp and the hospital proper were no longer regarded. Certain wards were set aside for yellow fever; beyond that no effort was made to isolate those infected. The steamship *Resolute* arrived July 25, laden with 10 immune surgeons, 35 male and female nurses, and large quantities of supplies of all kinds. August 2 the *Olivette* appeared in Santiago Harbor with large quantities of supplies, 35 immune nurses, and more immune surgeons. The sick, under these circumstances, received the best of care. The female nurses proved a great comfort to the sick, and physicians who came with them worked most faithfully.

August 5 the register showed 816 sick in hospital from all causes. It was on this date that I was taken ill with fever. I struggled to do my work until the 7th, at which time I was too much overcome to continue longer on duty. I turned the command over to Maj. W. C. Gorgas and placed my name on the sick list.

In closing my report of the events which have connected me with the reserve divisional hospital of the Fifth Corps it is fitting that I should testify to the heroic deeds and faithful services of some of its officers.

Capt. M. W. Ireland, assistant surgeon, United States Army, the executive officer, deserves special mention. He has demonstrated unmistakable capacity for work. He was the only one of those connected with the hospital from its establishment at Siboney to escape entirely the effects of the tropical diseases. Aside from his ability in the executive department, he showed skill and rare judgment in the operating room in the early days of July.

First Lieut. J. M. Kennedy, assistant surgeon, United States Army, ambulance chief, deserves mention for the skill and celerity with which he outfitted his train for field service at Port Tampa and for his faithful performance of duty in the transportation of sick and wounded from the 1st of July to the 1st of August.

First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army, exhibited superior knowledge and skill in the preparation of the operating room, and as an operator. He showed skill, endurance, and pluck in the treatment of yellow fever before the arrival of the immunes, and until he was stricken with the disease.

W. E. Parker, acting assistant surgeon, United States Army, of New Orleans, who was connected with the operating staff, proved to be one of the best operators on the staff. His skill as a surgeon was already sufficiently established before his entry into the service to have deserved advancement beyond the grade which he so humbly accepted. His knowledge as a yellow fever expert proved of inestimable value to us during the epidemic. Although a supposed immune, he was taken ill with the disease, from which he was temporarily disabled. At a time when errors during convalescence were causing fatalities daily, he insisted upon resuming his duties when he was still too weak to stand the work. His services to the Government were certainly far beyond his reward.

H. C. Gavitt, chaplain, United States Army, displayed great capacity for handling men in the executive department during the days of July 1-4. It was largely to his efforts—whilst Captain Ireland was employed in the operating room—that the wounded were properly sheltered and fed. He buried the dead, and was constant in his efforts to comfort the living. I left him in Siboney August 15 going his daily rounds, though much reduced in strength, in the same way he had done in the early days of July. We owe the systematic arrangement of the dead in the cemetery and the proper inscription for identification to his faithful performance of duty.

Maj. Victor C. Vaughan, surgeon, United States Volunteers, professor of hygiene at the University of Michigan, Ann Arbor, did good work in the operating room, and later his suggestions and advice pertaining to sanitary matters were of great value. He continued on duty until July 12, when he was stricken with yellow fever.

Maj. C. B. Nancrede, surgeon, United States Volunteers, professor of surgery in the University of Michigan, Ann Arbor, was naturally a prominent figure in the operating room. His advice was sought on every side in cases requiring the opinion of an expert surgeon. He and Major Vaughan brought us our first cases from the engagement at Aguadores Bridge where they were subjected to a sharp fire from the Spanish batteries. Men of prominence like these, who would abandon their interest in civil life through patriotic motives to engage in the hazards of war without stint, deserve richly the thanks of their countrymen, and I am pleased to be able to call the attention of the War Department to their conduct in this instance.

Maj. John Guiteras, the yellow-fever expert of the Fifth Corps, rendered valuable service in recognizing the presence of yellow fever at the inception of the epidemic. It was largely upon his advice that measures were employed at the outset to restrict the spread of the disease.

REPORT OF MAJ. M. W. WOOD, CHIEF SURGEON, FIRST DIVISION, FIFTH ARMY CORPS.

[Dated June 30, 1898.]

I was detained on duty with the Sixteenth Infantry at West Tampa, Fla., until about noon of the 1st instant, to complete the papers and turning over. I then applied myself to the task of organizing and equipping, at Tampa Heights, a hospital for the division, in the face of many difficulties, some of which proved insurmountable.

An attempt was made to procure every article of proper equipment for the hospital, but in this we were much handicapped by the exhaustion of supplies by the previous equipment of the two hospitals at Tampa Heights and Port Tampa. All articles necessary that could be procured were procured, including ambulances and tentage. When we received orders to embark on the 7th we were ordered to leave behind all canvas but flies, all ambulances and mules, and all horses but one for each officer. We went aboard the steamship *Santiago*, at Port Tampa, on the 8th. The transport lay in the harbor until the afternoon of the 13th, when it proceeded 38 miles to Egmont Key. We passed Key West after midnight of the 15th and 16th, and arrived off Santiago de Cuba on the 20th. On the steamship *Santiago* were headquarters and staff, First Division, Fifth Corps; headquarters and staff, Third Brigade, First Division, Fifth Corps; the Ninth Infantry; one battalion Tenth Infantry; and the First Division hospital and staff. The trip was an uneventful one on smooth water, and but few were seasick. We were moved back and forth in front of Santiago, and on the 25th were landed in the surf in small boats at a point variously called Siboney, Juraguasito, or Altares. On the 27th we moved out to the site of a deserted mansion with absolutely no transportation but the private horses of the medical officers. The Hospital Corps detachment had become augmented to 37 privates. These carried 14 litters, and on them 500 extra first-aid packages, 1 field operating case, 2 pocket cases, the case of instruments from the new surgical chest No. 1, cooking utensils, 20 bottles of chloroform, 2,000 c. c. of ether, and assorted dressings for about 200 wounded, in addition to rations, and the bedding rolls, and 3 hospital tent flies for wounded. On arrival at this camp I sent 4 men and 2 horses back to Siboney for more supplies.

On the morning of the 28th I sent 20 men and 4 horses back to Siboney for supplies, and in the afternoon moved, with wet bedding, to a new wet camp, the only available site for a field hospital, toward the front. The moving was accomplished by making two trips, just before nightfall. On the morning of the 29th, having reconnoitered the ground, believing an engagement imminent, we again moved with our own things wetted to a new wet camp, the present site of the hospital, then in advance of all troops except outposts, 1,200 yards in rear of where many of the casualties occurred. It seemed almost an ideal camp, except for the daily rains and the polluted water supply; but we could not control the rains and could only attempt to purify the water. The site was a long oblong, separated from the main highway by a strip of heavy timber and dense underbrush from 30 to 50 feet wide, and in a bend in the creek (dignified by the name of Rio San Juan). On each side of the creek were large trees and an almost impenetrable thicket. Thus, with access by three ways cut out to the highway and the creek (in a bed of rock and bowlders) for a water supply, our site was tolerably well protected from small-arms fire by the trees about it. The site was within rifle range, but we escaped attention. For water supply for surgical purposes I had a shallow

well dug in the river bed as far as practicable from the flowing water, thus securing a filtration through several feet of sand of the water, which had been polluted by the ablution, laundry work, and excreta of the 15,000 and more of men and hundreds of animals encamped on the stream above our site. This was boiled for twenty to thirty minutes and then filtered through a Berkefeld filter and kept in closed containers fairly sterile.

Of the performance of their duties by the officers and men of the hospital little need be said. Such uncomplaining performance of such services by northern men under the blazing tropical sun, such genuine devotion to the cause in which they were engaged, such indefatigable following by the men of the example set by the officers of the staff, can be summed up by but a single word—heroism. Where each and every one did far more than his duty, where the efficiency of each was limited only by the utmost straining of his abilities, no particularization can be made for the officers more than to say that each proved "the right man in the right place," and strove with unanimity each to emulate the others. Many of the men seemed to develop new faculties each day. Among the more valuable of these were Privates R. A. Wood, John E. Collins, B. F. Mayer, J. F. Fairman, and Harry C. Spears, all of whom richly deserve special commendation. Hospital Steward Denning, the only steward in the whole First Division, was invaluable.

It is much to be regretted that the actual organization and equipment of personnel is so vastly different from the theoretical paper personnel contemplated. It is also deplorable that a civilized army of a wealthy nation should be absolutely without transportation on the eve of what may prove a severe engagement, and I repeat that no transportation of any kind, save the single horses of medical officers, was furnished for this hospital from its landing until after the establishment of the hospital on this site on the 29th instant, the third day out. Supinely sitting in the mud awaiting transportation would not have resulted in the establishment of this which, as next month's report will show, was the only hospital at the front for the reception of wounded. The hearty assistance and encouragement of Lieutenant-Colonel Pope, chief surgeon, was a considerable stimulus to each to try to outdo the others.

REPORT OF MAJ. M. W. WOOD, CHIEF SURGEON FIRST DIVISION, FIFTH ARMY CORPS.

[Dated near Santiago, Cuba, July 31, 1898.]

My last report covered the establishment of the division hospital as near the enemy (1,200 yards) as it could be prudently located, in front of all our troops but outposts. In this location we received and cared for the wounded from the entire army who needed attention beyond the first-aid dressings applied on the line and at the dressing stations.

From the dressing stations the wounded came to us. The few walking cases not needing redressing, who were able and desirous to walk as far as Siboney, on the way homeward, were allowed to go on, and as rapidly as this could be done the sitting cases and the slighter lying cases were forwarded in army wagons and in the ambulances. Many of the more seriously wounded were retained as long as practicable, until the yellow fever all about us prompted me to take the risk of their removal.

The accompanying report by Major Johnson explains the want of record of many of the cases, and the meager details given of others. Not needed at the front because of the presence there of other chief surgeons who had no hospitals, and who had promised to attend to my duties there, I took upon myself the entire duties of the hospital outside the operating tables; attended to the unloading of the wounded who were delivered on litters, in army wagons, or in the only three ambulances there were with the army; attended to the orderly reception of these, that they might be relieved in proper sequence when it was not necessary to depart from this; to the assignments of patients to the tables when special assignments were considered necessary; to taking the records of the first 150 cases in such manner as to be most valuable for the Record and Pension Office, and until it became so dark that I could not see the pencil marks which I had made; to the disposition and arrangement of the wounded after they left the tables; and exercised a general supervision.

When the record taking was interrupted at about 7 p. m., on the 1st, there were probably 30 wounded ahead of us, and not until 5 a. m. did we catch up with the work, for many had been brought in in the moonlight. Then some of us snatched three hours sleep, until wounded began again to arrive by daylight. From that time we worked again until 3.30 a. m., until we had again caught up.

There was no one who knew how to do the work who could be spared to keep records, and we could only hope that in the hospitals which never joined the army this work might be done. As soon as Major Johnson could do so, he recommenced the record keeping, and was able to get some data in regard to some of the number who passed through our hands. The poor wounded were in a pitiable condition. Some, absolutely without clothing save the dressings on their severe wounds, had little but the wet ground for a bed and the sky for cover throughout that first terrible night; but we did the best we could in utilizing every scrap of canvas or bedding, and before very long could shelter, bed, and cover them. They were hungry, nearly famished, and with parched throats. What we could have done to relieve this but for the providential arrival of Miss Clara Barton and her little band of six, who proved ministering angels, I am glad never to know. She arrived in an army wagon, and in a few minutes had food in preparation and was distributing clothing. The first day they distributed 20 gallons of gruel and 10 gallons of malted milk. Next day, 10 gallons of gruel, 10 of malted milk, and 15 of rice. To this they added later 5 gallons of cocoa and 10 of apple sauce, with pineapples (native), stewed and raw. During the entire period until her departure on the 15th she continued to furnish quantities of supplies, not only to the wounded, but to the sick of the regiments at the front and to the offshoots of our hospital, and left a quantity to be subsequently distributed under my direction. Later, after the harbor of Santiago was opened, she distributed large quantities of timely supplies for our numerous sick.

A cask of captured Spanish wine, "Vino de Navarro," was turned over to me and proved of much service. Coffee was prepared in large quantities, and large quantities of a sort of soup were prepared from the canned roast beef, canned corn beef, canned beans, canned tomatoes, beef extract, and hard bread, which was quite palatable and eagerly taken. With the removal of the last of the wounded, because of yellow fever, their history with us was closed. Their uncomplaining acceptance of the aid which we were able to offer amid such surroundings was remarkable.

From our hospital there were formed as offshoots the general reception hospital for sick and the yellow-fever hospital of Acting Asst. Surg. H. P. Jones, both subsequently removed. The number of sick increased enormously until, on the 28th, it reached a maximum of 1,346, or 29 per cent of the total present in the division, and even then the Twenty-fourth Infantry, with its large sick list, was absent.

It is to me a source of unmixed pride and gratification that the entire personnel, so far as I know, of the medical department of the division, acquitted themselves so creditably. Their uncomplaining endurance of privations and exposure, while their abilities were taxed to the utmost limit, and the large-heartedness with which they cheerfully toiled on through sleepless nights, and the zeal with which they passed to the next sufferer, not only entitle them to a star position in the annals of the Department, but won them a secure place in the hearts of their combatant brethren of this division, which did the hardest fighting, suffered the heaviest losses in killed and wounded, and was "ever ready."

While heartily approving the well-deserved personal commendations in the inclosed reports, I desire, in conclusion, to commend especially to the attention of the Surgeon-General the following-named officers: Maj. W. B. Banister, by the manner in which he has performed his very arduous duties under peculiarly trying circumstances of physical debility and by the intelligent aid rendered the chief surgeon, has shown his fitness for the position of chief surgeon of a division. Capt. H. C. Fisher, for the high standard of efficiency he has maintained. Though he has remained with his regiment, his exceedingly valuable services have often come to the notice of the chief surgeon. Maj. W. D. Bell, surgeon Seventy-first New York Volunteers, richly merits for himself the words he has so fitly spoken of others for gallantry, and also for his extreme devotion to duty. Lieut. T. J. Kirkpatrick, who in every position in which he was placed has left the impression with all, "Would that there were more like him." Quietly, modestly, and gently he worked on the wounded with amazing rapidity, and seemed not to know fatigue. Lieut. G. C. M. Godfrey has richly won his "spurs," which I hope may be given him, with an additional volunteer promotion. A high compliment was paid him for his work under fire by a line officer, who said: "He's a darned fool; he doesn't seem to know what danger is." Acting Asst. Surg. Hamilton P. Jones would prove an excellent surgeon of volunteers, and is thoroughly fitted and trained for the position which he merits. Acting Asst. Surg. T. R. Marshall has shown that he is also fitted for and worthy of the position of surgeon of volunteers.

I know no words of blame or censure due to any of those who bore with us the heat and burden of the day.

REPORT OF MAJ. R. W. JOHNSON, BRIGADE SURGEON, UNITED STATES VOLUNTEERS, ON THE WORK OF THE FIRST DIVISION HOSPITAL, FIFTH ARMY CORPS, AT SANTIAGO, CUBA.

FIRST DIVISION HOSPITAL No 1,
Camp near Santiago, Cuba.

Maj. M. W. WOOD, U. S. A.,

Surgeon, First Division Hospital No. 1, Fifth Army Corps.

SIR: I have the honor to submit the following report of wounded in the battles of the 1st, 2d, 3d, and 10th of the present month:

I am well aware that the list is defective, and does not include the names of a great many who were admitted to this division hospital for treatment, but this was unavoidable, owing to the limited number of medical officers on duty, whose services were in constant requisition, caring for the wounded for three days and nights immediately following the battles.

Accurate information of the names, regiments, and locality of wounds was obtained from the time the first patient was admitted, July 1, until dark, when, owing to the large number of wounded coming from the front, and also to the fact that a number of these had been awaiting attention for at least three hours, it was decided to omit the histories; so none were accordingly taken for the remainder of the night. It was supposed that ample opportunity would be afforded the following day to enter in the records any whose names had been omitted owing to lack of time during the night, but the morning of the 2d found us with wounded coming in by the score, and the services of a medical officer could not be spared for that purpose. As a consequence many were simply dressed and forwarded to Siboney with no record of their names or wounds having been obtained.

A number of severely wounded from the first day's battle died during the evening or early the following morning after their admission, with absolutely no means of identification. It is with sincere regret that this statement must be made, but the immediate care of the wounded demanded the services of each and every member of the staff, including Hospital Steward Denning, Acting Hospital Steward McGuire, and all other privates of the Hospital Corps.

This matter of classification could have been properly attended to had there been a large number of medical officers on duty with the hospital, but being the only hospital in the field, the wounded of all three divisions were carried to us for treatment as soon as transportation facilities were available. Human endurance had its limit, and it was simply impossible to give to these matters the attention they deserved, although the staff worked nobly and uncomplainingly for nearly three days and nights with but little rest. I will say that during the night of July 1, Major Bell, surgeon of the Seventy-first New York Volunteers; Acting Asst. Surg. Thomas R. Marshall; and First Lieutenant and Assistant Surgeon Kirkpatrick, United States Army; and on the 2d and 3d Majors Havard and McCreery, surgeons, United States Army; Captain and Assistant Surgeon Stafford, Seventy-first New York Volunteers; and First Lieutenant and Assistant Surgeon Gates, of the Second Massachusetts, were detached from their commands and reported to the hospital for duty. All rendered timely and efficient service.

The fact that a number of soldiers died unknown, through no fault of ours, emphasizes the necessity of adopting some means of identification in men who are so badly wounded as to be unable to give any account of themselves. The diagnosis tags issued by the Surgeon-General were not used to any great extent, as a great many wounded were brought in without them. In some cases the writing was obliterated by the rain, or so indistinct as to render them of no assistance to us. As a result of my experience in this matter, I strongly urge the adoption of a metal tag to be worn around the neck, giving the name, rank, and regiment, and such other information as would be valuable in case of the death of a soldier.

There were only a few operations of any note; the most important being three laparotomies performed in apparently hopeless cases for perforating gunshot wounds of the abdomen, but all proved fatal. In this connection the question of the advisability of such major operations in the field is well worth careful consideration. A number of men recovered promptly who were wounded in the abdomen by bullets, which could not in their course possibly have escaped perforating the intestines. If to the natural shock attendant upon such injuries there be the additional one of opening the abdominal cavity, in the great majority of cases the result is sure to be unfavorable. That men can under certain conditions recover after the receipt of an abdominal wound in which the intestines are unquestionably injured, is well known; this has recently been well exemplified. I do not wish to be quoted as an advocate of nonoperative interference in such cases, as I consider surgical intervention a most necessary procedure when all the

surroundings are favorable; but in the field with our limited means of performing aseptic surgery, our inadequate facilities for after treatment, and the enfeebled and often infected condition these men are in after lying possibly some hours on the field of battle, and then removed several miles to the hospital over rough roads in army wagons and ambulances, make me confess to a liking for conservative surgery, which in such cases amounts to practical noninterference, so far as operative measures are concerned, as affording the only chance for the ultimate recovery of the patient.

Two amputations of the thigh were performed; one of the upper third for extensive crushing injury with great loss of tissue, and the other in the lower third for compound fracture, with injury to the main arterial supply. The former case was fatal in a few hours. The latter was performed several days after the receipt of the wound, on account of gangrene of the leg and foot.

An amputation at the upper third of the leg for a compound comminuted fracture of the tibia, with extensive loss of tissue, due to the explosion of a shell, was also performed successfully.

Ligation of the right lingual artery for secondary hemorrhage following gunshot injury resulted fatally, owing to the large amount of blood lost prior to the operation, and the consequent weakened condition of the patient.

A comparatively large number of compound fractures of the femur were sent to the hospital among the first, which soon exhausted our supply of splint material, but an excellent substitute was afforded by the woody part of the old growth of leaf of the palm tree, which when moistened could be accurately molded to the limb, in which position it remained after drying.

This made a very satisfactory splint, and while affording suitable strength was very light, and caused no pain or other inconvenience to the patient. A few Hodgen's splints were extemporized, but were discarded for those previously mentioned when the patients were transferred to Siboney. A more extensive experience with this splint will, I am sure, cause its adoption in many cases where neither Hodgen's nor Smith's anterior are available, and I accordingly recommend that a suitable supply be sent to the States for trial, as I believe it will be an excellent substitute for the heavy and cumbersome plaster-of-paris dressing now in such universal use.

The wounds inflicted upon our men by the small caliber Mauser bullets were much less severe than I had expected from the literature read on the subject. I certainly consider it a humane bullet in every sense of the term. There were a number of gunshot wounds of the skull where the bullet simply perforated the bones without any comminution or apparent splintering. In the case of Sergeant C—— a bullet entered the right parietal bone near its junction with the frontal and emerged at the posterior border of that bone, lacerating the brain substance. The first two days after admission to this hospital he was partially unconscious, but on the third day became rational and began to improve. When transferred to Siboney a few days later his condition was better, and beyond some blunting of the mental faculties, with peevishness and irritability of temper, gave fair prospects of ultimate recovery.

Private B—— received a perforating gunshot wound of the neck, the ball entering the right sterno-mastoid muscle at its middle, passing through the pharynx in its course, and emerging at the anterior border of the left sterno-mastoid at the same level. This patient was scarcely confined to bed, and up to the time of his transfer to Siboney, experienced very little difficulty from the injury. Perforating wounds of the chest, abdomen, and every other portion of the body healed kindly by first intention when not previously infected. Occasionally a ball seemed to pass directly through a bone without producing a fracture, but in the majority of cases—noticeably of the femur—a solution of continuity resulted. From what I have seen of the injuries inflicted by the Krag-Jorgensen rifle upon Spanish prisoners falling into our hands after the receipt of wounds, I have come to the conclusion that it is a much more effective weapon and produces wounds of far greater gravity than the Mauser.

Boiled and filtered water only was used in every case for cleansing and irrigation, and care taken at all times to secure as complete asepsis as possible. More efficient and satisfactory results with much greater comfort to our patients would have resulted had we been allowed to bring with us from Tampa the hospital equipment we had collected after so much time and labor. To be required to leave all our ambulances, cots, hospital tents, and depend on flies only in which to shelter our wounded men lying on the wet ground, was not a very encouraging outlook, but we determined to accomplish all we could under the circumstances. Our facilities were totally inadequate even for the First Division hospital, and owing to the absence from the field of the Second and Third Division hospitals,

which necessitated our caring for their wounded, work was thrown upon our hands for which we were entirely unprepared, and which taxed our resources to the utmost.

I desire to make especial mention of the strict attention to duty and valuable services rendered by the members of the hospital staff, Asst. Surg. G. C. M. Godfrey, United States Army; Acting Asst. Surg. H. P. Jones, United States Army, and Acting Asst. Surg. F. J. Combe, United States Army.

In conclusion I desire to express to you my appreciation of your valuable advice and counsel, freely rendered at all times, which was of great assistance to me in the management of the hospital in its various departments.

REPORT OF LIEUT. GUY C. M. GODFREY, ASSISTANT SURGEON, UNITED STATES ARMY, IN COMMAND OF THE AMBULANCE COMPANY, FIRST DIVISION, FIFTH ARMY CORPS.

[Dated July 28, 1898.]

As commanding officer of the Hospital Corps company of the First Division, Fifth Army Corps, I have the honor to submit the following report:

This company was organized at Tampa, Fla., on June 5, 1898, just two days previous to the departure of the troops of the First Division for the transports at Port Tampa, Fla. On the day of organization the strength of the company was 18 privates. No noncommissioned officer was assigned to it until June 7, 1898, when Acting Hospital Steward McGuire reported for duty.

When the order came to move the men of the company performed the work necessary thereto, and the enthusiasm and esprit de corps with which they labored added greatly to the celerity and facility with which the task was accomplished. The personnel and supplies of the division hospital, as well as the hospital company, was placed on board the transport *Santiago*, and arrived off the coast of Cuba, near Santiago, on June 20, 1898. The day before landing all of the material was brought up from the hold by the men of the company and stored on the main deck of the ship near the forward starboard port. This was done by direction of Maj. M. W. Wood, chief surgeon of this division, and proved a wise and efficient measure.

We landed on June 25 at Siboney, Cuba, and pitched camp on the beach. On this day 13 of the privates of the hospital corps of the Seventy-first New York Volunteers joined the company. During the night of June 25 Acting Hospital Steward McGuire and five of the men worked all night unloading the material for the hospital and storing it upon the beach under canvas. This was done by using small boats drawn by steam launches, and, owing to the high swell, it was at times quite dangerous. On several occasions the men narrowly missed injury from falling boxes.

On June 25 the men were given a short drill to perfect organization. Hurried preparations were made for a forward movement, and as absolutely no transportation could be obtained from the quartermaster's department, these preparations consisted principally in selecting such necessary dressings and drugs as the men could carry on their backs and litters. On the 27th the First Division moved forward, and the hospital company followed in rear of the Third Brigade, taking the ridge road toward Sevilla. Owing to the possibility of an immediate skirmish or battle none of the medical officers rode their horses, but made pack mules of them and carried as large a number of dressings, etc., as they could. The division camped in column of brigades, and the hospital company and division hospital pitched camp near the headquarters of the division commander. On the following morning 20 men and the steward and 2 medical officers returned to Siboney, and brought up 4 litters and as many medical supplies as possible, returning about 2 o'clock p. m. After a soaking rain the company broke camp and was ordered to move forward 2 miles. This they did, marching over a rocky yet muddy road, carrying the hospital supplies with them. They pitched their shelter tents on the soaking ground, while the officers, who had no shelter, slept in the open air, exposed to dampness and poisoning. On June 29 the company moved forward a quarter of a mile farther to a beautiful spot, with the Aguadores River on one side and the Siboney road on the other. Here on the 29th the division hospital was established, and here it remained all through the terrible carnage that followed. On this day six wagon loads of our supplies were brought up from the beach at Siboney, and tent flies were pitched and everything arranged for the coming battle. On the 30th of June the work of establishing the division hospital continued, and more of our supplies were brought from Siboney. * * *

At this time the wounded were coming back in a constant stream, and such as needed stimulation or dressing were at once attended to by the roadside. Many of them returned alone, others walked supported by the arm of some comrade, while the more seriously wounded were borne upon litters of various kinds. A few of those who returned had not received medical attention, but the majority of them were dressed with first-aid packages by the regimental surgeons and their hospital corps men.

At about 1 p. m. Maj. Valery Havard, chief surgeon of the Cavalry Division, established an ambulance station on the east bank of the Aguadores near El Poso. At this station many dressings were readjusted and a few patients were dressed for the first time. Stimulants, medicines, and dressings constituted the stock of this station, which was about 1 mile in advance of the First Division hospital. No point farther to the front was safe from the enemy's fire. The ambulances were worked constantly, and, considering their number, did remarkably well. Late in the afternoon ambulances were taken forward to near the farthest crossing of the Aguadores, but it was rather dangerous at all times, as the enemy kept the San Juan road enfiladed all day long. It was also very dangerous on account of Spanish guerrillas, who were located in trees overlooking the road. Several men carrying wounded were shot, and indeed in a few cases the patients themselves were hit.

At 11 a. m. a dressing station was established by Captain Newgarden at the farthest point where the San Juan road crossed the Aguadores. At this place there was a vertical bank about 4 feet high, beneath which there was a gravel beach. Here a certain amount of shelter was obtained, but bullets frequently cut through the bushes or splashed up the water in the creek. At one time it was enfiladed by Spanish sharpshooters in trees up the creek. Several horses were killed here, but no patients, surgeons, or attendants were injured that afternoon. It was at this place on the following morning that Dr. Danforth was killed. Late in the afternoon several escort wagons, having carried ammunition to the front, were turned over to the writer by Lieut. J. D. Miley, General Shafter's aid-de-camp. These were taken to this station and filled with the wounded, who were transported to the First Division hospital. Empty army wagons that could be found were used for this purpose, and the wounded kept coming into the hospital all night.

On the following morning an ambulance and two wagons were taken to the dressing station just described, and the wounded brought in, among them Acting Assistant Surgeon Danforth, who was shot through the head. Maj. S. Q. Robinson had assumed command of this station on the previous afternoon, but at this time he, with Capt. W. D. McCaw, rejoined their regiments, and left the station in charge of Capt. G. J. Newgarden. Maj. V. Havard arrived later, and established an ambulance station at this point, which was then comparatively safe. It was customary during the battle for the writer to send litters and dressings to the front in the empty ambulances. During and after the battle the men of the hospital corps company did much of the work in the First Division hospital. They assisted in operations, helped in applying dressings, made soup and coffee, carried patients to and from the operating tables, and acted as nurses to the wounded. With but few exceptions they worked all day, all night, all the following day, and most of the next night. They were assisted by members of the bands of the regiments and by some of the hospital-corps men of the regiments.

During the battle the first-aid work was very effective, and was done mostly by regimental surgeons and their hospital squads. Many dressings were applied by line officers and soldiers on the firing line, and in some instances by the wounded men themselves. Maj. S. Q. Robinson, who commanded the Aguadores dressing station on July 1, says that only about 10 patients came there who had not been dressed by first-aid packets. Words can hardly express the appreciation which the officers and men of the line have for the first-aid packets. They realize now as never before the value and importance of instruction in first-aid work. The very small number of suppurating wounds can readily be accounted for by the prompt application of these dressings.

REPORT OF CAPT. EDWARD L. MUNSON, ASSISTANT SURGEON, UNITED STATES ARMY, COMMANDING THE RESERVE AMBULANCE COMPANY, FIFTH ARMY CORPS, AT SANTIAGO, CUBA.

[Dated July 29, 1898.]

In view of the recent charges made affecting the efficiency of the army medical department at Santiago, and especially with reference to the conditions prevailing on the hospital transports sent north with wounded, I have the honor to *submit* the following facts, believing that my position as adjutant to the chief

surgeon Fifth Corps and as the officer in charge of the outfitting of the hospital transports *Iroquois*, *Cherokee*, and *Breakwater* may possibly give value to such report:

Drugs, medicines, dressings, instruments, hospital tentage, and supplies were loaded on the transports at Tampa in quantities sufficient to meet the needs of the Santiago expedition. These supplies were divided up on the various vessels, each organization having its own equipment. While the bulk of the supplies was with the organized hospitals, the regimental equipment was largely in excess of its needs, and was intended to be called in to supplement, if necessary, the equipment of these hospitals.

The landing on Cuban soil was made as rapidly as possible, each organization accompanied by the medical attendants assigned to it, and troops were pushed forward with no other equipment and supplies than could be carried by the soldiers. Having no means of transportation for even their field chests, the regimental medical officers had absolutely no resources at their command except such as were provided by the orderly and hospital corps pouches and the first-aid packets carried by the soldiers.

Having once left their ships, the latter were promptly ordered out of the small bays at Siboney and Daiquiri to permit the unloading of other vessels. These partially unloaded ships, in obedience to their orders, then proceeded to sea from 5 to 15 miles, where they remained, hove to, indefinitely. Such orders were given the transports carrying the reserve and the first divisional hospitals.

The vessel carrying the reserve hospital, in obedience to its orders, proceeded to join the naval blockading squadron off Morro Castle, where it remained five days and nights; the other transport disappearing, if I was correctly informed, for an entire week, during which time the fight at Guasimas had occurred, and large numbers of sick and wounded were requiring treatment. In the meantime the report of the conditions prevailing on shore was made to the chief surgeon, who promptly laid the case before the commanding general, requesting that a launch be placed under the control of the medical department for the collection of medical supplies from the various transports. It was also requested that a pack train be organized, in the proportion of one pack mule to each regiment, to transport supplies—especially the field chests—to the front for proper distribution, and the writer was named by the chief surgeon as available for the performance of these duties.

The exigencies of the situation did not apparently appeal to the commanding general, and for two days the medical department was unable to get transportation of any kind to the other ships or to the shore, although there were a large number of naval launches and boats employed on various other duties.

On the third day, by order of the adjutant-general, one rowboat was turned over to the medical department for the purposes above named, and at the same time an order was issued for land transportation to carry medical supplies to the front, "not to exceed one 6-mule team."

On getting into this boat with supplies from the headquarters transport I was directed by sundry staff officers to take them on various errands. On my refusal to recognize their authority the commanding general, who had appeared on the scene, personally revoked the previous order and directed, after the landing of the supplies already in the boat, that it should return without delay.

Presenting the order for land transportation to the quartermaster on shore, I was informed that only pack mules had as yet been landed; that neither wagons nor harness had been brought ashore, and, finally, that the road was impassable for wagons.

After this boat had been taken away the chief surgeon was without any means of communication with the medical officers on shore or still on transports, of finding out their wants, or of remedying the many already known to him.

This condition of things remained until after the fight at Las Guasimas, at which time there were absolutely no dressings, hospital tentage, or supplies of any kind on shore within the reach of the surgeons already landed.

The news of the Guasimas fight being reported to the chief surgeon, he was finally able to get on board the *Olivette* and send her to Siboney, where she received the wounded.

Within the following day or so the transports carrying the reserve and first divisional hospitals were found and unloaded of their hospital contents, the latter hospital finally obtaining limited transportation to the front for its supplies.

After a couple of days' duty on board the *Olivette* I was directed to put the *Iroquois* in condition to receive patients and to take the full capacity of the ship on board. While doing this I was able to set ashore considerable hospital tentage and supplies found aboard of her, and having control of her boats I was able to visit other transports in the harbor and land medical supplies from them.

While subsequently outfitting the *Cherokee* and *Breakwater* this work was continued as well as opportunity and limited facilities permitted, getting supplies from perhaps a third of the transports composing the fleet. Outside of this it is believed that no other regimental medical property was ever unloaded up to the time of my departure with wounded on July 10.

Appealing on several occasions for the use of a lighter or small steamer to collect and land medical supplies, I was informed by the quartermaster's department that they could render no assistance in that way, and the medical department was compelled to rely entirely upon its own energies and improvise its own transportation.

I feel justified in saying that at the time of my departure large quantities of medical supplies urgently needed on shore still remained on transports, a number of which were under orders to return to the United States. Had the Medical Department carried along double the amount of supplies it is difficult to see how, with the totally inadequate land and water transportation provided by the Quartermaster's Department, the lamentable conditions on shore could have been in any way improved.

The outfitting of transports for the reception of sick and wounded is a duty demanding thought and experience, and should never be intrusted to anyone but a regular medical officer. It includes the proper policing of the portions of the ship to be used by the wounded; the removal of bunks and partitions to give space and air; the utilization of the ship's blankets, door mats, rugs, and carpets to render the bunks more comfortable; the securing of extra supplies, such as canned soups and fruits, lime juice and oatmeal; the establishment of a mess and laundry, and the assignment of convalescents to specific light duties which materially relieve the overworked hospital corps.

Usually it is necessary to overcome passive resistance and opposition on the part of the crews and a tendency on the part of the captains to disregard or modify orders. In several instances in my own experience this action of the crew amounted almost to mutiny, and was only to be dealt with by threats, a show of force, and in one instance by the use of the irons.

While executive officer at the general hospital, Fort Monroe, I learned officially that the captain of the steamship *Seneca* positively refused to obey the orders emanating from your office, given to him by the contract surgeon in charge, to proceed to New York; he remaining nearly an additional day at Hampton Roads with sick and wounded, asserting that he would obey no orders given by the Medical Department.

A similar experience of my own at Daiquiri, which had to be settled by force, emphasizes the fact that no one should be placed in charge of such a ship who is not accustomed to command men and enforce obedience.

With regard to the Red Cross Society it would seem as if the lofty purposes of this organization were, on the Santiago expedition, subverted to individual interests. While at Tampa the Red Cross ship *State of Texas* was formally placed under the control of the chief surgeon, Fifth Corps, by Dr. Egan, the representative of the society, he acting under telegraphic instructions to that effect.

Colonel Pope accepted this offer and directed that the *State of Texas* accompany the expedition of General Shafter to its destination. Although this order was fully understood by Dr. Egan the *State of Texas* did not accompany the expedition, nor did it arrive at Siboney until the forces had been landed, a battle fought, and our hospital established and in working order.

The first offers of aid made by this society dealt largely in generalities and manifested reluctance to subordinate the organization to the Medical Department.

Too much praise can not be given to the individual efforts of Dr. Lesser and the Red Cross nurses. Their work was untiring and unselfish, and the assistance rendered by them was of great value.

In conclusion it is desired to emphasize the fact that the lamentable conditions prevailing in the army before Santiago were due, first, to the military necessity which threw troops on shore, and away from the possibility of supply, without medicines, instruments, dressings, or hospital stores of any kind; second, to the lack of foresight on the part of the Quartermaster's Department in sending out such an expedition without properly anticipating its needs as regards temporary wharfage, lighters, tugs, and despatch boats, and without an adequate number of stevedores to handle property. The quartermasters personally accompanying this expedition were entirely unable to properly carry the severe burdens imposed on them in spite of the personal energy displayed by them in making the most of the limited facilities and resources at their command.

REPORT OF CAPT. GEORGE J. NEWGARDEN, ASSISTANT SURGEON, UNITED STATES ARMY, OF HIS SERVICES AT SANTIAGO, CUBA, WITH THE THIRD UNITED STATES CAVALRY.

We arrived at Daiquiri, Cuba, on June 23 and went into camp on the side of a hill about 1 mile from the landing place. I was unable to take any supplies along, not having any transportation for the same. I succeeded in obtaining an emergency case from Major McCreery while in camp. A mackintosh and a woolen blanket constituted my protection from the elements. The brigade surgeon offered me for use with the regiment a medical and a surgical pannier, but no transportation having been provided for them I was obliged to refuse them with regret. On June 25 I made personal and thorough effort to secure transportation and supplies, but without success. I applied personally to the major-general commanding on board the *Seguranca* and requested a mule for a mount, but was refused. Later I succeeded in getting a Government horse from the brigade surgeon, which I managed to get equipped with a teamsters saddle and mule bridle after considerable effort. Before leaving this camp a box of first-aid packets was turned over to me and one was issued to every man and officer in the regiment. We proceeded as far as El Poso hill, where hostilities began at daylight on July 1. Captain Grimes's Battery, which was planted here, opened fire on the enemy. Reply was received in the form of a steady, well-aimed shrapnel fire, which did considerable injury to the troops of the cavalry division drawn up in column in the road below the hill. It was here that I had my first injury to dress; a bandaman of the Third Cavalry, perforating shrapnel wound of the buttock.

We marched to the San Juan River, after crossing which the command was formed for action, and it was here the actual conflict began. I observed that this point was an excellent place for a first-aid dressing station, as the bank was about 3 feet high, and there was a short or gravelly shelf running from it to the creek, where the staff officers had left their horses. I had these removed, and in conjunction with Dr. Menocal, contract surgeon on duty with the Sixth Cavalry, decided to establish here the dressing station for the Third and Sixth regiments of cavalry. By the aid of a few men with shovels I had this shelf increased in area by filling in the creek along its sides. By the time this was done the battle commenced, just over the bank. This, which was the nearest dressing station to the firing line, became, by virtue of its location, a general collecting, first aid, and ambulance station for the whole line of fire, as the only road ran right by it and it was at the regular ford of the creek on this road. The wounded came in so fast that our energies and the capacity of the station were frequently strained to their utmost. Dr. Menocal and myself cared for all comers from whatever regiments, dressing their wounds and making them comfortable, having covered the earth with leaves, and spreading the ponchos of the wounded over these. I endeavored to keep records of the wounded and the nature of their injuries, but it was absolutely impossible for the time being. I did manage, however, to keep track of the injured of my regiment fairly well, which records I completed later, after reaching the regiment on the cessation of hostilities. Improvised litters were made of boughs and shelter halves. Men who were able to walk were allowed to proceed to the division hospital on foot, if their injuries were not grave. Those more severely injured and able to bear it were sent back on litters with bearers.

Pack wagons which passed toward the front with ammunition and commissaries were pressed into service on their return, and such wounded as could endure the rough ride were carried to the rear in this manner. Three ambulances only were available later, and in these the worst cases were transported. As it was, the capacity of the station was strained severely at all times during July 1, as the wounded were steadily pouring in from all regiments. Later in the day Maj. S. Q. Robinson arrived at the station and assumed charge until night, when the firing ceased. During the night he proceeded to the front and presumably joined his command. Captain McCaw also reached the station about the same time with Major Robinson, and the four of us had all we could attend to in looking after the wounded. At no time was this station safe, as the bullets were coming in from all directions continually, cutting the trees all around us, and occasionally so thick that it looked like rain in the creek. Shrapnel shells were also bursting disagreeably close at times, as the enemy had the road enfiladed. The wounded were made quite safe under the bank, but it was very dangerous in the open, where we had to go and come continually, looking after the welfare of the injured and preventing blockade in the station by incoming troops on the way to the front. Captain McCaw remained at the station until next day, when he proceeded to rejoin his regiment, the Sixth Infantry, returning toward evening, as there was little to do

forward, all the wounded having reached my station. During his absence on the second day the division surgeon, Maj. V. Havard, rode up to the station and ordered Dr. Menocal to join his regiment, commanding me to remain in charge of the station until relieved by orders from him. It appears that this locality, though dangerous in the extreme, so much so that it gained the name of "Bloody Angle" or "Bloody Bend," was of great value as a dressing and ambulance station while the conflict lasted. Many men were wounded at and about this station. Dr. Danforth, contract surgeon, with the Ninth Cavalry, received a mortal wound, perforating the brain. Six animals were killed on the creek bank, and one having dropped in the creek I made efforts to procure a detail to have the carcass dragged out and buried, but without success. Eventually I had to employ an ambulance team to do the work, and also Hospital Corps men to bury it and the others, as they were rapidly becoming offensive.

Chaplain Swift of the Thirteenth Infantry did excellent duty here, quieting the fears of the wounded, burying the dead, and superintending the foraging for food, in which he was very successful, securing a camp kettle and plenty of coffee, sugar, bacon, hard-tack, and canned roast beef. Coffee was kept continually boiling, and the wounded revived by the same, as well as food for those who wished to eat. Even smoking tobacco was plentiful, and it was a great boon to the injured who smoked. The sufferings of the severely wounded were quieted by hypodermics of morphine; and, on the whole, there was nothing further desired except transportation, and that we were sadly in need of. Several of the fatally injured were retained at this station over night, and made as comfortable as possible on litters with plenty of blankets, of which latter there was an abundance, as many of the volunteers had discarded them along the road. A few very severely injured who could not stand transportation in pack wagons were also retained by their own choice as well as ours, and sent safely to the rear in ambulances in the morning. On the 5th of July I received orders from Maj. V. Havard that I should abandon this station, as it was no longer needed, and was at all times dangerous, and rejoin my regiment. I immediately obeyed the order, and with Dr. Harris and Dr. Menocal started a brigade hospital behind the San Juan Hill for the three regiments, Dr. Harris being brigade surgeon in command. As the men were now succumbing to the prevailing fever, we had plenty of work on our hands. In the meantime Maj. V. Havard, division surgeon, established a supply station close to this hospital, where we replenished our medicines as needed, also receiving and dispensing such articles of sick diet as beef extract, malted milk, and canned soups and broths, etc. I continued at my duties with the regiment until I myself was stricken with a severe attack of fever on July 16, and on the 18th was sent to the division hospital for treatment.

REPORT OF CAPT. CHARLES F. KIEFFER, SURGEON IN CHARGE, ARTILLERY
BRIGADE, FIFTH ARMY CORPS.

[Dated September 22, 1898.]

I have the honor to submit the following report of the health and sanitary condition of the Light Artillery Brigade during the operations about Santiago and the voyage to Montauk on transport. This command was made up of six batteries. Of these, four batteries left on the first expedition and landed June 23, and two batteries on the second expedition, landing on July 9. The batteries were all in widely-separated positions in the trenches and were massed near Caney, immediately after the formal surrender. This camp was maintained until the departure from Santiago in different transports, between August 19 and August 23. The average strength of the command was 550 enlisted, 25 officers. There were three medical officers with the command: Capt. Charles F. Kieffer, Lieut. William W. Quinton, and Lieut. William H. Wilson, assistant surgeons United States Army. There were also four acting hospital stewards and an average of 8 Hospital Corps privates.

Immediately after the surrender the organization of a brigade field hospital was begun, and in a few days I had excellent provision for 50 sick, including cots, blankets, supplies, and foods. This hospital held all our seriously sick men, and the others were made as comfortable as possible in their battery camps.

The daily sick report averaged 120, and this proportion of the troops was more or less constantly maintained during the month following the fall of the city. These figures do not represent the total unfit for duty, because many of the men were so enfeebled that if more work than the minimum to maintain a clean camp had been required, they would have been unable to do it. The great majority of

the sickness was a thermic fever and various types of malarial infection. These fevers at different times attacked at least 95 per cent of the command—75 per cent had two attacks and about 40 per cent had three attacks to the time of leaving the island. Careful notes were made, and in a future report I hope to present some of the technical aspects of these cases. There were also 10 cases of either typhoid infection or severe remittents with typhoid symptoms. In the absence of microscopical evidence a differential diagnosis was impossible. I incline, however, to the belief that the cases were of malarial type. We had very few cases of dysentery, and the type was mild and easily controlled. Two cases of measles developed, necessitating a quarantine. Ten men were transferred to hospital ship by order of the chief surgeon of the corps, and when the command left camp 10 more were transferred to general hospital at Santiago.

During all this period there was but 1 death—a suicide. There was not one death from disease until after the dispersion of the brigade at Montauk. I understand, unofficially, that 2 men have died in hospital at Montauk and 1 officer at Washington. These men were in Southern camps a long time before going to Cuba, and made the whole campaign, being exposed to the weather and all attendant hardships as much as any troops on the island, and the sick showing is therefore a good one.

The camp was selected with great care by the brigade commander. The water was excellent, being a mountain stream fed by springs. Every effort was made and every precaution taken to keep it pure, and I think with success. Whenever possible contamination was feared, the men were counseled to drink boiled water. This is a difficult thing to get men to do. A thirsty man will drink anything, but nevertheless a great deal was accomplished along this line. The men were also forbidden to eat the various tropical fruits brought into camp, especially the mango. I think this precaution kept the average of intestinal troubles as low as it was. Tents were aired daily. The conical tents were dropped and the canvas lashed about the tripod and pole so that all the ground beneath was thoroughly aired and sunned. For a long time the command had no tents and the men slept under shelter of the gun paulins. The same precautions were adopted with them. The paulins were thrown back and the ground well aired. The men were also made to build bunks to raise themselves from the ground. This was generally accomplished with forked sticks, grain sacks, and split bamboo. The sinks were regularly inspected, filled in, and renewed. The men were forbidden to enter any of the old dwellings and buildings about. The use of old lumber stripped from these filthy huts, as flooring or for making bunks, was also forbidden. I think this was the most frequent and glaring sanitary misdemeanor committed in Cuba. Men were allowed to enter dwellings, strip boarding, shutters, and doors and use them in their tents.

The presence of the horses made an additional difficulty in camp sanitation, but the picket lines were frequently changed and kept very clean. In fact, a very rigid and effective police of the camp was maintained. So that, notwithstanding a great handicap, these men came out very well. They had horses to groom and the horses had to be herded. This necessitated a large proportion of the men being out in the fierce sun for quite a long time each day, and brought in that way many relapses.

The value of the precautions taken is proven, I think, by the exceedingly low proportion of cases and mortality from dysentery. But, above all else, there was at no time even a suspected case of yellow fever, and, as far as I can learn, very few organizations escaped this infection entirely. I wish also to state that every single sanitary recommendation received the hearty support of the brigade commander, and was immediately and effectively carried out.

This brigade had at all times as good a supply of medicines as could reasonably be expected under the circumstances. After the surrender of the city, we were very well supplied with not only comforts, but luxuries. Ice was furnished in quite generous amounts, and this 5 miles from the city. The prepared soups and milks were very grateful to the sick. No soldier of this command was at any time placed in jeopardy for lack of medicine.

The food supplied the men was of good quality and the ration was well handled. The beef was exceptionally good. There was a considerable lack of food during the siege, and only the most portable of the components of the ration could be brought up to the trenches. The suffering was not great from this cause, and I think, beyond lowering the resistance of the men somewhat, had no permanent ill effect. It was a hardship of the campaign borne cheerfully and alike by all, from the commanding general to the last recruit. From the fall of the city, as far as careful inspection could determine, these men messed about as well as they ever do in the field.

I wish to commend to the surgeon-general the work of Assistant Surgeons Quinton and Wilson and their zeal in the execution of their duties. These officers performed their duties and did hard professional work when they were sometimes as sick as the men they were caring for. This report has been delayed by my own illness.

Captain Kieffer's report was forwarded by the brigade commander, Gen. W. F. Randolph, with the following remarks:

"In forwarding the inclosed report, it is a source of gratification to call the attention of the Department to the extremely able manner in which Dr. Kieffer has performed his duties. As its senior medical officer present, he was brigade surgeon from July 9 to August 24, when he was compelled to succumb to repeated attacks of malarial fever. Immediately after the surrender at Santiago, the camp of the Light Artillery Brigade was established near El Caney. The command was largely without tents, which had been carried off on the transports to Porto Rico. During this time the troops were exposed to daily rains, and the sick report assumed such alarming proportions as to necessitate the establishment of a hospital for its own immediate use. In this work Dr. Kieffer showed untiring effort, and I believe that his subsequent illness was largely due to his frequent exposure to the sun in visiting Santiago, to obtain tents, cots, and supplies. Not a single death from disease occurred while the brigade was in Cuba, and when the yellow fever expert, Dr. Gonzales, made the final examination, previous to its departure, he gave it one of the few clean bills of health granted to departing troops."

REPORT OF MAJ. FRANK J. IVES, SURGEON VOLUNTEERS, CHIEF SURGEON
INDEPENDENT BRIGADE AND PROVISIONAL DIVISION, FIFTH ARMY CORPS,
DURING THE PERIOD JUNE 7 TO SEPTEMBER 12, 1898.

The Independent Brigade consisting of the Third and Twentieth United States Infantry and one squadron (Rafferty's) of the Second Cavalry under command of Brig. Gen. John C. Bates, United States Volunteers, was on board the transports at Port Tampa, Fla., when I reported for duty pursuant to orders from corps headquarters.

Upon reporting to the brigade commander I received verbal instructions to embark on the transport *Stillwater*. The medical department of the brigade consisted of myself and 3 acting assistant surgeons, 2 acting hospital stewards, 9 privates of the Hospital Corps, 4 being orderlies for medical officers, and 3 being ambulance drivers. Each regimental surgeon was equipped with a medical and surgical chest and field case, the members of the Hospital Corps with their appropriate pouches, and every officer and enlisted man in the brigade was furnished a first-aid package. There were 3 ambulances fully equipped with this brigade, and it ultimately developed that these were the only ones with the corps until sometime after the battle of July 1, 2, and 3.

No hospital equipment beyond that above enumerated was taken, for the reason that prior to embarking from Mobile, Ala., from whence this brigade sailed on June 4, Colonel Greenleaf, of the medical department, had distinctly stated that it was absolutely unnecessary for troops leaving Mobile to transport hospital supplies, as these would be provided at Tampa, arrangements to that effect having been perfected. Notwithstanding this there was no chance to equip the brigade completely at Port Tampa, owing to the confusion incidental to embarking and the uncertainty as to the exact hour of departure.

The disembarkation occurred at Daiquiri, Cuba, on June 22 and 23, each man being equipped with the blanket roll, haversack, canteen, arms and ammunition, besides three days' rations. On the afternoon of the 23d the brigade marched toward Siboney, camping about 2 miles east of the same. On the following morning, the 24th, it proceeded to Siboney and went into camp at the extreme western end of the town. Soon after reaching the latter place the squadron of the Second Cavalry was detached from the brigade, and I received verbal orders to report for duty at brigade headquarters. At about 9 a. m. word was received that Young's brigade of Wheeler's division had encountered the enemy, resulting in many casualties. General Bates instructed me, at that time the senior medical officer present, to make arrangements for the reception of the wounded. Upon reaching the lower end of the town I found a temporary hospital had been established by Maj. W. B. Banister, brigade surgeon, United States Volunteers, in an abandoned house, which had been cleaned out and rendered as fit as possible for their reception, and that 8 or 10 of the First United States Volunteer Cavalry had already

arrived and were being treated. The building occupied was an old, dilapidated structure, but it was impossible at that time to improve upon it. There was no tentage to be obtained, and as far as fear of infection was concerned, there was little choice between the buildings. The heat was intense, the hospital ship *Olivette* not in the harbor, and it was necessary to place the wounded under shelter of some kind at once. A large box of surgical dressings belonging to the First United States Volunteer Cavalry was soon after obtained and proved a most valuable acquisition. Maj. Valery Havard, chief surgeon of the cavalry division, arrived in the course of the day and assumed charge of this temporary hospital. There was some adverse criticism resulting from the use of this building for hospital purposes, which, in the opinion of the writer, was unjust. When it is considered that the Army was in a hostile country, that the village had just been occupied, that the base of supplies was practically at Daiquiri, 9 miles distant, and that there was absolutely no chance for shelter from the sun and rain until the arrival of the *Olivette*, there was nothing else left to do, as there was no natural shelter to be obtained. Subsequent events did not show that the slightest evil resulted from the occupation of this building by the sick or wounded. The independent brigade remained at Siboney until June 30. During this interval the brigade was encamped in close proximity to the houses of the town. The headquarters occupied a house previously used as a residence for the superintendent of the Juragua Iron Company. A hospital was established at Siboney, under charge of Major La Garde, and a limited amount of material was sent to the front for another located near General Shafter's headquarters. As the independent brigade consisted of only two regiments, no effort was made to undertake the establishment of a hospital, but the field equipment, consisting of the medical and surgical chests and some additional medicines and dressings, was obtained for each regiment.

One set of chests, besides a box containing a fine assortment of dressings and medicines, was also secured for brigade headquarters. The latter articles, under the personal supervision of the writer, were loaded on a wagon with commissaries and ammunition and were transported to the firing line, reaching there after midnight on the night of July 1, and proved of the most inestimable value during the two days' fighting that followed. The brigade left Siboney at 9 p. m., June 30, marching about 7 miles. On the following morning, July 1, at daybreak, it proceeded to General Shafter's headquarters, leaving there at 10 a. m. to support Lawton's division, then engaged with the enemy at El Caney. Soon after noon the brigade went into action between Chaffee's and Miles's brigades, and at about 3 o'clock assisted in taking and holding a strong stone fort from which the enemy had been dislodged. Owing to the limited number of medical officers then with the brigade no attempt was made to establish a dressing station, but it was deemed preferable for them to remain on the firing line and advance as far as practicable with the command. The wounded thereby received immediate attention, and were left in sheltered localities until ultimately transported to the nearest collecting station. By following this method the writer was enabled to render assistance in many instances, not only to the wounded of his own brigade but to many others who were too distant from their regularly established dressing station to hope for relief for a considerable time to come. Whereas these stations are necessary as gathering stations for the wounded prior to their transportation to the field hospital, it strikes the writer as essential that the wounds should be dressed as soon as possible after their reception, and that the medical officer and his assistants should be on the spot rather than have the patient wait indefinitely until means for transporting him to the dressing station are forthcoming. This was particularly evident during that portion of the battle following the capture of the stone fort above mentioned. After its capture the hill was occupied by the Third Infantry and portions of the Twelfth, Twentieth, and Twenty-fifth. The Spaniards concentrated a heavy fire upon these troops and there were many casualties, among them Captain Rodman, who was in command of the Second Battalion of the Twentieth, and Mr. James Creelman, a correspondent of the New York Journal.

The writer was the only medical officer present in this section during the battle, and at no other period were his services more urgently needed. The firing line at this point was stretched along the crest of the hill upon which the fort was situated, and a temporary dressing station established at a sheltered spot a few feet below the crest, so that the wounded had only to be carried by their comrades this short distance, thereby enabling the latter to return at once to their commands. In this way prompt assistance was rendered and the firing line not appreciably weakened, which would not have been the case were it necessary to depend upon the previously established dressing station. The regimental surgeon of the Twentieth, Acting Asst. Surg. T. S. Aby, United States Army, remained on the firing

line with the First Battalion of that regiment, which did not participate in the charge above mentioned, and the surgeon of the Third, Acting Asst. Surg. E. R. Bragg, United States Army, remained with his regiment until just prior to the charge, when his professional duties kept him in the rear, which accounted for neither of them being present at the stone fort. When all our own wounded at this point were cared for, the wounds of a number of Spanish prisoners were dressed. As the writer was thus occupied, the prisoners showed signs of great amazement and gratitude, evidently as if they had expected harsh treatment. These prisoners received the same care as our own wounded, and that same evening were carried to the nearest dressing station. The Spanish dead were decently buried at the scene of their gallant resistance, the line of intrenchments around the fort being utilized as a common grave. At about 5 p. m. the enemy had entirely disappeared. The brigade was withdrawn and bivouacked a couple of miles to the rear. The writer remained at the fort until nearly dark, and then, accompanied by his orderly, rejoined the command. During this ride he was fired at by some one concealed in the brush, which was the only instance of bushwhacking personally known to him. About 9 o'clock the line of march was resumed, and the brigade took position on the left of Kent's division, then occupying the San Juan Hill, before Santiago, this position being the extreme left of the line and covering that flank. It was reached between 1 and 2 o'clock in the morning.

On July 2 the Ninth Massachusetts Volunteers joined the brigade. During the 2d and 3d a portion of the brigade was in the intrenchments, the remainder being held in reserve about 300 yards behind the firing line. At this point the latter troops were exposed to a double enfilading fire and suffered considerably. A dressing station was established and efficient work done, the box of additional medicines and dressings proving a most valuable acquisition. Among the things in this box were sufficient extra "first-aid" packages, which were issued to the men to supply those used in the first day's fight. The casualties in this brigade during the three days' fighting were 4 killed and 29 wounded. This includes one member of the Hospital Corps wounded on July 2 while assisting in dressing a wound of a comrade. After the fighting of July 1 the wounded were transported on extemporized litters to adjacent dressing stations whose locations had been determined and were subsequently sent to the rear. On July 2 and 3 those treated at the brigade dressing station were carried to a collecting station on the Siboney road, near the San Juan River, where they were held until transportation could be procured to take them back. As the three ambulances above mentioned were the only available ones at that time, escort and many army wagons had to be impressed into service for this purpose.

I would respectfully submit the following remarks upon the personnel and equipment of the medical department on the battlefield, the conclusions being based upon personal observations, not only during the recent campaign, but for several years prior to the same: No regiment should go into active service with less than 1 surgeon, accompanied by his orderly; 1 steward and private of the Hospital Corps for each battalion; that each regimental surgeon should have a pack animal, with a mounted packer, under his exclusive control; that instead of the medical and surgical chests at present issued, ordinary stout boxes be employed, filled with a selected assortment of surgical dressings, together with a liberal allowance of a few very necessary medicines, such as quinine, cathartic pills, calomel, diarrhea tablets, antiseptic tablets, beef extract, aromatic spirits of ammonia, etc.; that each surgeon should carry on his person a small, compact pocket case—the present field case is of poor quality, clumsy, and useless.

There should be a light form of litter for active service. At an annual meeting of the Association of Military Surgeons of the United States, held in 1893, the writer submitted an article on a field litter. In the article it was claimed that an army in action required a light, serviceable stretcher that could readily and in comparatively large quantities be rushed to the front, and suggested one made of bamboo as possibly answering the purpose. However, the idea was rather discouraged by certain theorists who objected to the litter in question. In a discussion following the paper, some claimed the litter was useless on account of having no legs; others that it could not be used in an ambulance; others that it was not military enough, holding that it was desirable to have an article more suitable for the litter drill. The fights around Santiago demonstrated that the medical department should be equipped with just such a light stretcher which could be transported in quantities to within a short distance of the firing line and there distributed. The use of blankets, overcoats, and shelter tents for extemporaneous litters is not practical, owing to the difficulty and time in procuring poles. The area of destruction of the modern small arm is so extensive that the distance between the firing line and the collecting station is liable to be very great. On

that account the extemporaneous litters should not be depended upon, but the strongest efforts should be made to provide more suitable methods of transportation. As far as the writer could inform himself, the litter drill was entirely dispensed with in this campaign, and no effort was made toward its employment.

The first-aid package filled its part most nobly. Too much praise can not be bestowed upon it nor can one overestimate the benefits derived from the excellent instructions given for its use. The contents of the package might be improved by adding a small quantity of pulverized boracic acid or some other powder for a dry dressing. In many cases it was found difficult to hold the antiseptic gauze in position, which could be accomplished by a few strips of adhesive plaster. Four such strips, 4 inches long by one-half inch in width, laid flat in a small paper envelope, would be a valuable acquisition.

Prior to going into action an opportunity was offered the brigade to replenish the canteen. The men were cautioned to use the water sparingly in drinking, which enabled the surgeons to have sufficient water to cleanse all wounds before applying the dressing. In instructions in first aid this point should be emphatically dwelt upon. Also the men should be carefully impressed with the folly and danger of unnecessarily removing the dressings without the sanction of a medical officer. Several cases came to the knowledge of the writer where mischief resulted on account of the erroneous idea that a dressing should be frequently changed. By educating the soldier in this respect, much benefit will result. During the battle and subsequently the regimental bands rendered the most valuable assistance in the care of the sick and wounded. Some of their members procured rifles and participated in the fighting, while the remainder were attached to the medical department. Too much credit can not be given these men, who, under the most trying circumstances, performed their duties most excellently, displaying the greatest zeal, energy, and patience. For several years prior to the present war the writer has advocated the use of regimental bands for this purpose, and suggested that they receive special instructions in the duties pertaining thereto, but had received unanimous discouragement, especially from regimental officers. This instruction should be compulsory for all bands in the future. Better results in the instructions for the enlisted men can be obtained by requiring the medical officers to personally superintend them instead of their receiving it second-hand through their company officers.

During that portion of the campaign from July 4 to 17, designated as the siege, the brigade held its position on the left flank, and the main portion of it was located in the intrenchments, which were not abandoned until after the surrender of Santiago. The health of the command up to this period was excellent, but on the 4th the sick list was suddenly augmented by a large number of cases of acute ephemeral fever. This seemed to be confined principally to the Third and Twentieth Regiments of Regulars, the Ninth Massachusetts Volunteers apparently being free from it. The attack in most cases was sudden in its onslaught: in some preceded by a chill, but in the majority not; the temperature would suddenly run up to 104° or 105°, be attended by only a moderate increase in the pulse rate, severe frontal headache, pains in the back and limbs, a flushed and swollen appearance of the face, marked conjunctival congestion, and great prostration. The tongue in many cases was large and flabby, showing, after a day or two, the marks of the teeth. At night there was a tendency toward wakefulness or great restlessness, attended by vivid dreams; nausea and vomiting were usually present. The attack in most of these early cases lasted from three to five days, when the symptoms would subside and the patient gradually recover. This epidemic appeared during the latter portion of the battle, being fully developed about July 4. It was observed that a few days afterwards it seemed almost completely arrested, when there was a slight interval, lasting several days, when a second rush of cases occurred. This, in view of subsequent events, is of great importance, as the writer is convinced that many of the first series of cases were a mild form of yellow fever and the latter ones were malarial, thermal, or ephemeral in character. It is an established fact that Siboney was an infected locality, consequently the independent brigade, which had camped there almost a week, had been exposed to infection. The brigade headquarters had occupied a building previously used as a residence in the town, and among the first series of cases above mentioned, General Bates, all of his staff officers, orderlies, and servants were, without exception, included; and were taken sick almost identically at the same time. The writer was in the list, and although quite ill for several days, did not permit himself to be sent to the rear, but remained with the command. This illness prevented him making a clinical study of these early cases, but most of the symptoms enumerated above were present. In his case upon the abatement of the fever, the temperature became subnormal, and the pulse fell to about 45 per minute.

Dr. Guiteras saw him a few days after convalescence was established and pronounced it a mild attack of yellow fever. This was the last sickness of any kind experienced by the writer during his sojourn on the island, although he was continually exposed to all the rigors of the climate and weather.

In the first series there must have been in all about 100 cases, of which possibly 40 were transported to Siboney. Of the second series about 200 cases, of which 75 were sent to the rear. Many of these latter were pronounced yellow fever by the experts, and placed in the fever hospital, where a large percentage of them were extremely ill, and many died from undoubted yellow fever. On July 15 the writer went to Siboney, and from personal investigation became suspicious that many cases of alleged yellow fever were in reality nothing more than some form of acute, noncontagious fever, and that in sending our patients to Siboney we were placing them in a position of the greatest danger. The impression obtained from this visit to Siboney was that the majority of these experts were completely stampeded, and were calling everything yellow fever. This resulted in many cases, which the writer is now convinced were not such, being sent to the fever hospital, there contracting the disease, and ultimately losing their lives. On returning to the firing line, instructions were given not to send any more cases to the rear, which was strictly adhered to for the remainder of the campaign.

The above-mentioned suspicions became certainties in the opinion of the writer when subsequently it transpired that during the interval from July 20 to August 23, 4,900 cases of fever occurred in the provisional division (on July 13 the independent brigade was reorganized, becoming the provisional division), and there was not one death from yellow fever, nor was there a single case which could be clearly diagnosed as such. This proves conclusively, as far as the observations of the writer extend, that whereas an epidemic of yellow fever did exist at Siboney, that none existed among the army on the firing line, although sporadic cases may have developed from time to time. The medical officers of the Regular Army, and those on duty with the troops, were, as a rule, in no way included in this general stampede, which but for them might have proved disastrous to the Fifth Army Corps.

On July 18 orders were issued the division to vacate the position held on the left flank, and it took station in the neighborhood of the San Juan blockhouse. The division at this time consisted of the Third and Twentieth Infantry (regulars), the Ninth Massachusetts, the First District of Columbia, and the Thirty-fourth Michigan. The Thirty-third Michigan and the Eighth Ohio, although officially attached to the division, never actually joined. On July 19 a temporary division hospital was established on a strip of elevated ground behind the San Juan Hill. Capt. T. E. Roberts, assistant surgeon, First Illinois Volunteers, was detailed as officer in charge. Besides the surgeon in charge, there were 3 medical officers, 3 stewards, and 2 privates of the Hospital Corps, detailed from the volunteer regiments. One full company of infantry from the Ninth Massachusetts Volunteers was also detailed to act as a hospital guard; they also performed the duties of a permanent police detail and assisted in the care of the sick.

Shelters were first constructed of bamboo uprights, with brush shed, and a few days afterwards eight wall-tent flies were secured. On July 21 the first official records show 115 sick in hospital and 264 in quarters, a total of 379, of which all but 13 were from the original independent brigade.

On July 21 the writer received orders from the chief surgeon of the corps assigning him to duty in charge of two hospitals located in the neighborhood of General Shafter's headquarters on the Siboney road. These proved to be a detention hospital under the charge of Acting Assistant Surgeon Pitt, and a yellow-fever hospital under charge of Acting Asst. Surg. Hamilton F. Jones, United States Army. Each hospital contained about 115 cases. They were fairly well supplied with hospital tents, cots, bedding, and camp furniture, although the supplies were not equal to the demand. The latter portion of the month these hospitals, under the writer's personal supervision, were broken up and transferred to Siboney. Before effecting this transfer 100 complete suits of clothing were obtained from the quartermaster's department and were issued gratuitously to the convalescent yellow-fever cases. The ground occupied by both camps was thoroughly policed and burned over; all cast-off clothing, rags, worn and soiled bedding, cots, and tents were destroyed.

About the 25th a cargo of medical supplies, under charge of Major Summers, brigade surgeon, United States Volunteers, arrived at Santiago. Immediate steps were taken to improve the condition of the sick. A fully equipped division hospital, with a capacity of 150 cots, and at the same time regimental hospitals of 15 or 20 cots, were established. The sick list from this time on became enormous; fully 25 per cent of the command were on the sick report, and of the remainder fully two-thirds were unfit for other than the lightest duty. An overwhelming

majority of the cases were malarial, with a few typhoid. The latter disease developed as an epidemic about August 1. This epidemic of typhoid was, in a great measure, produced by contamination of the San Juan River, due to the exodus of noncombatants from Santiago to El Caney. The latter numbered about 20,000, including many sick, who were collected in the town and in the immediate vicinity of El Caney.

The stream from which our army obtained its water supply became a common sewer for this temporary community. Except in isolated instances, there were absolutely no facilities for boiling the water; consequently, as a matter of necessity, the command was compelled to utilize the same. After the occupation of Santiago and the establishment of the hospital, 9 acting assistant surgeons and 3 civilian nurses were assigned to the division for duty. The division commander detailed Captain Sullivan's company of the Ninth Massachusetts Volunteers for permanent duty with this hospital. It gives me great pleasure to state that Captain Sullivan and his command performed the arduous duties connected with the hospital well and faithfully. These men performed guard duty connected with the hospital, general police, buried the dead, dug sinks, and, in addition, a detail was constantly on duty in each ward, night and day, administering nourishment, supporting patients to stools, and performing all the duties of nurses. Too much credit can not be given this command for their subordination, obedience, and patience under the most trying circumstances, and the valuable work accomplished by them. In this connection I would add that the division commander and the officers at his headquarters cooperated most earnestly with the chief surgeon in advancing the welfare of the sick. Transportation for supplies was always furnished and special fatigue details made whenever requested. Lieutenant Reeve, aid-de-camp to General Bates, rendered valuable assistance by volunteering to superintend the obtaining of the hospital equipment and its transportation to the site of the same. Major Irons, engineer officer, personally superintended the laying out of the hospital camp and the pitching of the tents.

On August 3 the corps commander summoned all the general officers and chief surgeons of divisions to a conference at his headquarters. When assembled he stated that his motive in thus calling them together was to obtain their individual views regarding the present sanitary condition of the army of occupation and recommendations as to the best policy to pursue. The unanimous opinion was then expressed that the army was in a deplorable condition on account of illness, and the only course to prevent its ultimate destruction was its immediate removal from Cuba. The feasibility of moving the command to the high ground in the interior was discussed, but found absolutely impossible owing to the fact that there was no organization in the entire army which could undertake to break camp and march 5 miles without 80 per cent, at least, being compelled to go upon sick report. A 10 miles' march would have converted the army into an immense hospital. The railroad, having a carrying capacity of only 600 men, could not be used, as it would have taken a month to transport the army and its supplies. The Washington authorities seemed more apprehensive of yellow fever than anything else, which was probably brought about by the alarming reports from the experts and the almost general stampede, above referred to, in their ranks. But the regular and volunteer officers on the firing line were convinced that yellow fever was one of the lesser evils so long as it was confined to Siboney, but that typhoid, malaria, and dysentery were to be dreaded. These diseases proved so extremely debilitating and the malarial relapses recurred so frequently that it was only a question of time when the vast majority would succumb unless removed from the pernicious influences. This resulted in two statements being prepared and signed, one by general officers and the other by the chief surgeon, setting forth the above facts, and recommending the immediate removal of the entire corps to some point in the United States. This was favorably acted upon.

On the following day a board of officers consisting of Col. C. F. Humphrey, quartermaster department; Maj. F. J. Ives, brigade surgeon, United States Volunteers, and Lieut. J. J. Pershing, Tenth Cavalry, was ordered to inspect all transports leaving Santiago, with the view of determining their condition, capacity, and supplies. This duty devolved almost exclusively upon the writer, as Lieutenant Pershing became ill and left on one of the early transports, and Colonel Humphrey's duties occupied his time almost exclusively. Every transport which left Santiago from August 5 to the 26th, when the writer sailed on the *Berlin*, was personally inspected by him one or more times before sailing. These inspections were in every case thorough and covered the condition of each vessel as to cleanliness, sanitation, and supplies. No troops were allowed to board a vessel until it had been reported in fit condition for their reception. The water-closet facilities were examined and found to be amply able to accommodate the number of passengers, and each was provided with suitable means of flushing. The floor

space was carefully examined, and in no case was overcrowding permitted. If the utmost capacity of a vessel was 1,000, not over 500 or 600 would be allowed to embark, which ratio was approximately maintained. The board was particularly careful in this respect, owing to the known weakened condition of the men and the large number of sick. The question of hammocks for the men and proper stateroom capacity and messing arrangements for the officers was investigated, also whether the command was properly rationed and the senior surgeon had sufficient assistance and medical supplies. A schedule of medicines was made out by the chief surgeon of the corps, based upon the number on the transports. These together with the liberal allowance of foodstuffs for the sick were, under the personal supervision of the writer, put on board each transport. In many cases cots, mattresses, and bedding were taken for the use of the sick. Notwithstanding adverse criticism in the daily press, the writer does not believe an army ever before in the history of the world was more completely and more comfortably equipped than the Fifth Army Corps in the journey from Santiago to Montauk. When it is considered that the army was an immense moving hospital, the death rate was remarkably low. Two of these transports, the *Mobile* and the *Alleghany*, were the targets of unusually vindictive attacks. The *Mobile* is a large cattle ship, with an utmost capacity of transporting 3,000 troops. She carried on this occasion about 1,600. The ship was clean, well ventilated, and in good sanitary condition when the troops boarded her. The accommodations for commissioned officers were not particularly satisfactory, but no complaints were made on that score. Supplies of all kinds were ample, for there were ten days' travel rations for the men and a liberal amount of special foods for the sick. The former had hammocks and the latter cots.

Adverse comments have been fully indulged in on the employment of "cattle ships," gresome mental pictures being drawn whereby visions of inhumane overcrowding were indulged in, leading one to imagine our men jammed like a pen full of cattle in the stock yards. As a matter of fact ships of the *Mobile* type are most admirably adapted for transport purposes. They are constructed with a view to steadiness, and are well ventilated. The writer personally examined and inspected every vessel in the transport fleet, and saw every type from the *St. Paul* to the *Stillwater*, and the so-called "cattle ships" were far above the average as far as individual comforts of the enlisted men were concerned. The *Alleghany* was one of the most commodious and desirable of the transports. The statements against her made in the press dispatches were absolutely without truth. Dr. Magruder, of the Marine-Hospital Service, who inspected her upon arrival, was quoted as stating that she was in a most deplorable condition. In my presence, and that of several reporters, he denied having made any such remarks, and said that on the contrary the vessel was above the average. Captain Sullivan, of the Ninth Massachusetts Volunteers, was the senior line officer on the *Alleghany*. He informed me that all derogatory statements as to the condition of the ship were false; that during the trip from Santiago the men were comfortable, well taken care of, and had abundant supplies. The large death rate (14) was due to the greatly debilitated condition of the men, and was in no way augmented by anything incidental to the journey. The same can be said of the death rate (10) on the *Mobile*. The following features impressed themselves upon the writer as essential for all transports: That the fixed berths be entirely done away with and hammocks substituted; that every sleeping section should not only have port holes, but there should be a system of electric fans and forced ventilation; that the bathing facilities be rendered as commodious as possible; the kitchen facilities should be much increased, so that one hot meal a day may be served. All vessels should be lit by electric lights, and the quartermaster's department should be responsible that sufficient life-preservers are on hand. There was not a ship in the entire fleet that had anything like the requisite amount of the latter, and the lifeboat capacity was entirely inadequate. This fact seemed to strike nobody as particularly essential, but unless it is rectified there may be a terrible calamity. Suitable regulations should be established for the guidance of the men while on the transports. If the weather permits they should be forced to take off their leggings, shoes, and stockings, at least during a portion of the day while the decks are being scrubbed down. A light form of shoe or slipper should be furnished, and an inexpensive yachting cap or light headgear of some kind. Many of the men, through carelessness or otherwise, lose their hats overboard, and as it is impossible to replace these except by borrowing from someone having an extra one on hand, very serious results are liable to follow.

The division began to embark for Montauk Point on August 18, being the last to leave. It was deemed preferable for each organization to carry its own sick, leaving behind only those whose condition rendered their removal perilous. The *Olivette* had previously taken on 40 cases, all but 1 being typhoid. The steamer *Bay*

State, a hospital ship sent by the State of Massachusetts, took 60 of the worst cases in the Ninth Massachusetts, the majority of these being typhoid. A board of medical officers, consisting of Major Kilbourne and Captain Fisher, of the medical department, United States Army, and Acting Assistant Surgeon Gonzales, was appointed to examine all the members of each regiment prior to its embarkation, with the view of determining whether any cases of yellow fever or even suspicious cases existed. All cases pronounced such by this board were ordered to remain in a detention hospital established for that purpose. About 30 cases in the division were designated by this board as suspicious, but it was afterwards demonstrated that none of them had yellow fever.

Major-General Bates, his headquarters and staff, including the writer, left Santiago on August 26, on the transport *Berlin*, which also carried the First Illinois Volunteers. After a pleasant and uneventful voyage Montauk Point was reached on August 30, a landing effected on the following day, and everyone placed in the detention camp at that place. The Provisional Division was never reorganized, but one regiment after another was ordered to their respective homes until, on September 12, it was completely dissolved.

Sanitary regulations.—During the period from the time of debarkation to the surrender it was impossible to follow any sanitary rules beyond a proper location and care of all sinks and the general policing of individual camp sites. Water could not be boiled; men were forced to sleep on the wet ground with no tentage other than shelter tents, and but few were provided with changes of underclothing. After the surrender the condition in many regiments was improved, their camp equipments being obtained from the transports. The Third United States Infantry and the Ninth Massachusetts Volunteers were not able to obtain their property and as a result were in a very deplorable condition, especially the latter, who were not so able to take care of themselves, not being seasoned soldiers like the others.

The commissary department fulfilled nearly every requirement during this campaign, and at no time was the brigade, and later the division, without rations. Occasionally one article or another might be missing, but under the circumstances the department was excellently administered. After the surrender fresh meat and fresh bread were issued. Canned fruit, vegetables, and quite an assortment of commissaries were also to be obtained. Ice in fairly good quantities was also issued for the sick. The writer recommended to the corps commander that an ice machine in Santiago be seized and turned over to the medical department, but the idea was not adopted, as a large supply of ice was expected, which was ultimately received and issued. Soon after the occupation of Santiago supply depots were established by the commissary and medical departments. Gratuitous issues of canned fruits, soups, lime juice, rice, and condensed milk were made by the commissary in sufficient quantities for all the sick, the same being readily obtained upon requisition countersigned by the chief surgeon of the corps. The issue of coffee in the bean to the command during active hostilities was very unsatisfactory and occasioned unnecessary hardships. There being no coffee mills on hand each soldier was forced to crush the bean in his cup, which was usually done with the bayonet handle. The coffee was thus imperfectly ground and the product not up to the ordinary standard. Tobacco in some form during such a campaign should be a component part of the ration. Much suffering was experienced by the command on account of its absence. An emergency ration of some kind should have been supplied.

The Red Cross Society was a valuable adjunct in supplying necessities to the sick. The writer had no occasion nor opportunity to call upon the same until after the surrender, when a requisition calling for oatmeal, corn meal, rice, malted and condensed milk in quantities sufficient to last the division several days was promptly filled. This occurred before the commissary department had established depots for the issue of supplies outside of the regular ration. Subsequently the society was called upon from time to time and never failed to respond.

The supply of medicines during the campaign was at times woefully short. However, by active exertion on the part of the writer, he was enabled to obtain a fair quota of everything available. From the time of landing until after the battle of July 4 the brigade was fully equipped, but when the epidemic of fever set in the supply of quinine, antipyretics, and calomel were quickly exhausted. Beef extract and condensed food of some kind was most urgently needed, as the only articles of diet were bacon and hardtack. Quinine and antipyrine were furnished in quantities which, although not abundant, were sufficient to meet the requirements, but the beef extract and calomel were not to be obtained. In fact, until the latter part of August the supply of calomel was practically nil. After the surrender a medical supply depot and ambulance station was established under the control of Lieutenant Kennedy, assistant surgeon, United States Army. Under this officer's able management, a good supply and

variety of medicine were constantly on hand. Limited amounts of beef extracts and whisky were obtainable. This depot was discontinued in the latter portion of July, and another, under Major Summers, brigade surgeon, United States Volunteers, was established in Santiago. During a period of several days, until Major Summers was relieved by Major Carr, brigade surgeon, United States Volunteers, there was considerable difficulty in obtaining supplies, and for one or two days the division was almost destitute of medicine of any kind. Colonel Havard, the chief surgeon of the corps, made a limited purchase of medicines from a local dealer, and a day or so later the writer, upon the approval of the chief surgeon, made extensive additional purchases from the same source. The *Olivette* arrived about August 8 with an assortment of medicines, but the supply was limited and contained only two small bottles of calomel. Soon after this medicines of all kinds came rapidly pouring in, and, under the capable management of Major Carr, were available for almost immediate issue. Besides the purchases above mentioned, quite an amount of calomel and other drugs were bought by individual regiments.

In the opinion of the writer, many statements regarding the absolute lack of medicines were exaggerated. At the meeting of general officers and chief surgeons above mentioned a chief surgeon of a division stated and repeated that his division had been without medicine of any kind for eleven days. No such state of affairs existed in the Provisional Division, for the writer adopted the plan of going personally every morning to the supply depot and there ascertaining exactly what medicines were actually on hand and what expected, and in that way succeeded in never being totally without medicines, except for the couple of days above mentioned. By adopting this plan in all subsequent efforts he was enabled to equip a hospital which was, in the estimation of many, second to none in the corps. The medicines most sorely needed, and of which there was a decided deficiency, were calomel, bismuth, morphine, strychnine, and a tonic tablet of some kind. The latter would have been of inestimable value during the period of convalescence. After the arrival of Major Summers hospital supplies of all kinds, exclusive of medicines, were abundant and readily obtained.

One of the greatest difficulties encountered by the writer in the management of his department was the almost complete lack of experienced hospital stewards. There were a number of volunteer hospital corps men in the division, but, with the exception of two acting stewards, one each with the Third and Twentieth Infantry, there were no regulars on hand. These volunteers did excellent service, but, being unfamiliar with military matters, were unable to render such assistance in the management of affairs as the serious nature of the occasion demanded. With the exception of the chief surgeon, there was no medical officer of the Regular Army with this division, consequently nearly all of the executive work pertaining to his department devolved upon him, not only in his own office, but throughout the command. The qualifications of many of the acting assistant surgeons were far from satisfactory, this being especially the case with many who reported for duty toward the end of the campaign.

Colonel Havard on several occasions offered the services of female nurses, but the writer declined them, being at that time opposed to their use in the field. Before the final close of the campaign, however, he became convinced that his previous conclusions were erroneous and that female nurses were in every respect superior to males in all division and general hospitals. Their presence near the firing line during active hostilities would not be desirable, but from their work in this campaign there can be no doubt of their great value in military hospitals.

Before concluding this report the writer would like to state that the conduct of all the surgeons and hospital attendants while attached to the brigade and division was on all occasions exemplary. All duties were performed faithfully, and each man seemed to strive with all his energy to accomplish what was assigned him. As chief surgeon of the division he takes great pleasure in expressing his high appreciation of the valuable services rendered by Acting Asst. Surg. T. F. Aby, regimental surgeon, Twentieth Infantry. This officer's unceasing devotion to duty under the most trying circumstances was a matter of general comment. Acting Asst. Surg. C. E. Pöey proved himself an excellent officer, performing all duties assigned him with an energy and thoroughness that merits recognition. Majors W. P. Willard, surgeon, First Illinois, and R. A. Pyles, surgeon, First District of Columbia Volunteers, proved themselves efficient and valuable medical officers. The sanitary condition of these two regiments was fully as good as any in the division, and would compare favorably with that of the very best in the corps.

Capt. T. E. Roberts, assistant surgeon, First Illinois Volunteers, being the officer in charge of the division hospital, was in close official relations with the writer and cordially operated with him on all occasions. This officer, under the

direction of the chief surgeon, had exclusive control of the hospital, and by his energy, zeal, and constant attention to duty and high professional attainments contributed more than any individual toward its success. The regimental surgeons were unable to keep records during the campaign, owing to the immense sick report and total lack of clerical facilities. However, a list of all cases admitted to the division hospital from July 18 until its final abandonment on August 25 was maintained and will enable the writer to furnish your office in the near future with a report of sick. A consolidated numerical sick report of the division was made daily, beginning July 21, from which the following tables are compiled:

Consolidated sick report of the Provisional Division, Fifth Army Corps, from July 21 to August 25, 1898.

Treated:		
In division hospital	967	
In regimental camps	5,620	
		6,587
Returned to duty	5,555	
Transferred:		
To general hospital	87	
To hospital ships	114	
To detention hospital	31	
Died	31	
Transferred to transports a	769	
		6,587
In division hospital:		
Fever (all kinds)	942	
Other diseases	25	
		967
In regimental camps:		
Fevers	3,998	
Other diseases	1,622	
		5,620
Total		6,587

CONSOLIDATED REGIMENTAL REPORTS.

	Treated in division hospital.	Treated in regimental camps.	Total.	Length of time attached to division:
3d Infantry	80	719	799	July 21 to Aug. 18.
20th Infantry	108	1,040	1,148	Do.
1st Illinois Volunteers	70	1,443	1,513	July 21 to Aug. 25.
1st District of Columbia Volunteers	101	1,221	1,322	July 21 to Aug. 21.
9th Massachusetts Volunteers	542	904	1,446	July 21 to Aug. 25.
34th Michigan	40	293	333	Aug. 4 to Aug. 19.
Casual	26		26	
Total	967	5,620	6,587	

CAUSES OF DEATHS.

Typhoid fever	11
Pernicious malarial fever	7
Malarial fever	4
Measles	2
Functional disease of the heart	2
Gunshot wound (assault in a brawl)	1
Tuberculosis pulmonalis	1
Shock from exposure	1
Asthenia	1
Dysentery	1
Total	31

a Those actually on sick report taken by regiments on journey to Montauk.

DEATHS.

Officers.....	2
Enlisted men.....	29
Total.....	31
Civilians attached to command.....	1
Total.....	32

Maj. Patrick J. Brady, Ninth Massachusetts Volunteers, died suddenly of functional disease of the heart, July 29, 1898.

Maj. Michael J. O'Connor, Ninth Massachusetts Volunteers, died August 6, 1898; pernicious malarial fever.

Frank Talley, civilian, with First Illinois Volunteers, died August 4, 1898; remittent fever.

When the medical service was systematized after the surrender, each regimental surgeon was required to report daily all suspicious cases of yellow fever. There were 26 of such cases reported. They were in every instance isolated, but none developed into yellow fever. Only two of these were taken to the detention hospital, and, as far as learned, neither proved to be as suspected. Frequent examinations were made by Acting Assistant Surgeon Aby, whose residence had been in Louisiana for years, and who is perfectly familiar with the disease. He maintained throughout that he saw no case of yellow fever while on the island. From the clinical history of the fevers under treatment, the absence of death, and the fact that not a single case of yellow fever developed in the division during the journey north and subsequently, it seems to the writer very clearly demonstrated that his conclusions regarding the character of the fever were verified.

Pursuant to verbal instructions from the chief surgeon of the corps, the division hospital was abandoned on August 25, the tentage left standing, and all property remaining therein undisturbed.

REPORT OF COL. WILLIAM H. FORWOOD, CHIEF SURGEON, CAMP WIKOFF, MONTAUK POINT, LONG ISLAND.

[Dated October 18, 1898.]

The following brief account of my work at Montauk Point, Long Island, is respectfully submitted for your information:

I left this station July 31, 1898, in obedience to the following order:

[Special Orders, No. 177—Extract.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE, Washington, July 29, 1898.

26. Col. William H. Forwood, assistant surgeon-general, United States Army, will proceed to Montauk Point, Long Island, New York, and there establish a temporary tent hospital of 500 beds, assist in the selection of suitable camping grounds and in locating wells for camps, and in general act as a sanitary expert in providing for the health and comfort of the troops to be sent to that point, and on completion of this duty will return to his proper station. The travel enjoined is necessary for the public service.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

In accordance with your verbal instructions I proceeded first to New York City and reported to Brig. Gen. G. L. Gillespie, United States Volunteers, commanding the Department of the East. The general had no instructions about making a camp at Montauk, and as there was no one up there to render any assistance I waited, reporting each morning until Wednesday, August 3. On that day Capt. J. N. Patten, quartermaster of volunteers, and Mr. Smith, of the Quartermaster's Department, reported, and we went together to Montauk in a special train with the president of the Long Island Railroad Company, arriving there at 3.30 p. m. We drove round and took a general view of the grounds.

Thursday, August 4, I studied the location more in detail, selected sites, and made plans for a large field hospital, a detention hospital, and for the detention

camp. The ground was then examined with a view to the location of wells and the best method of obtaining a suitable supply of water for the various widely separated camps and hospitals. It was apparent at once that drive wells were impracticable on account of the boulders and compact layers of clay, and that in order to get a sufficient quantity of water one or more large deep wells would have to be dug. At Montauk Point the ground is covered with a mass of glacial drift, composed of large and small boulders, boulder clay, and gravel, thrown up into hummocks, with intervening excavations everywhere over the surface. Under this the same layers are met with that prevail on other parts of Long Island and along the middle Atlantic coast, known in geology as the "Potomac beds," consisting of a series of clay, gravel, and sand of varying thickness, repeated one after another down to the primitive rock.

There is little soluble mineral matter except a trace of iron in the clays, and the water found in these beds is exceptionally pure. The water from wells at Montauk is therefore of the same character as that found at other points on Long Island, where its purity and fine quality are well known. It happens also at Montauk that the upper layer of the series is the clay several feet in thickness and very compact. This constitutes a safe protection against surface drainage. Water that accumulates from rain in the numerous basin-like excavations everywhere over the boulder drift does not percolate away rapidly into the ground, but remains for weeks in pools with clay bottoms, almost as impervious as cement, until it slowly disappears by evaporation or overflows when the rain falls again.

Long Island is celebrated not only for the purity of its well water, but for the abundant quantity to be obtained in the heavy layers of water-bearing sand and gravel at a depth of from 40 to 60 feet. Mr. C. A. Lockwood, an experienced well-digger from Jamaica, Long Island, appeared upon the ground, and Captain Patten immediately set him to work in a suitable location to dig a large well, which he thought would furnish 500,000 gallons, and which did eventually furnish more than that amount of excellent water per day. This method of obtaining water involved the erection of steam-pumping apparatus, large tanks, and extensive pipe lines, and the troops were soon to arrive. To meet the emergency until a well could be dug it was proposed to establish a pumping station temporarily on the shore of Fort Pond, near by, and to order up a number of water wagons at once. The water in Fort Pond is mainly from surface drainage, but at that time the surrounding region was clean and free from sources of contamination. The pond is nearly a mile long and half as wide and the water contains about 50 grains of salt to the gallon.

The grounds selected for a military camp at Montauk Point comprised an area several square miles in extent, uninhabited, and bare of trees, except a few stunted shrubs in sheltered places, which bore evidence of the high winds that prevail there at certain seasons. There are two large ponds or lakes and very many smaller ones scattered over an uneven surface, which is generally high and well drained, ranging up to 100 feet above sea level. The soil is a rich loam well covered with grass, and the landscape bordered on one side by the ocean and on the other by Fort Pond Bay presented a very picturesque appearance, but there were no hard roads and it was evident that much time and labor would be required to make and keep them in repair on this loam and clay with the heavy teams and the vast amount of hauling needed for a large military camp.

At the station we found only a single railroad track ending at a small shanty on a barren sand bar. There were no switches, side ways, platforms, storehouses, or other facilities for landing the thousands of carloads of freight, passengers, and material soon to arrive. On Fort Pond Bay there was a narrow pier and a small fishing wharf, but the pier was not wide enough for the landing of a transport vessel and the fishing wharf was so insecure that a danger signal was placed across the entrance to warn people from walking out upon it. Both of these structures had to be repaired immediately by the driving of heavy piles and the use of bolts and lashings. On this day, August 4, the movement of troops from Santiago, with thousands of sick, was ordered to begin at once, and three days later the first installment from Tampa came. There were no teams, lumber, tents, men, or means at hand to prepare for their reception. The enormous task and the grave responsibility before us was fully appreciated as we looked out over this bare and lonely region so soon to be crowded by an army of soldiers, more than one-half of whom would require hospital treatment.

I telegraphed the Surgeon-General for men of the Hospital Corps to come up at once with tents and rations. That night we returned to New York, the quartermaster to make contracts and order up men, teams, lumber, tents, boilers, engines, pumps, pipe, tanks, pile drivers, tugs, lighters, and a thousand things that were necessary for the work, and I to procure medical supplies, bedding,

furniture, cooking ranges, etc., which I did for a hospital of 500 patients. On Friday, August 5, Major-General Young reported in New York and went up to command at Montauk, and having completed my arrangements with the medical purveyor, I followed on the evening train.

August 6 was a day of waiting and expectancy. The railroad company was beginning to lay switches and side tracks at the station. Acting Assistant Surgeon Holmes reported for duty. I received instructions from the Surgeon-General, and laid them before the major-general commanding, to select detention camps for 4,000 men with detention hospitals convenient. These were already laid out awaiting the arrival of transportation, labor, and material for their construction.

Sunday, August 7, still waiting. I sent the following telegram to the Surgeon-General: "Tents, lumber, rations, and water expected soon. Sick men better not be sent here before Tuesday at the earliest." I also telegraphed to have a disinfecting barge from the Marine-Hospital Service sent to take charge of quarantine in the harbor and to disinfect, when necessary, the men's clothing and effects before landing. This was referred to General Wyman and acted upon promptly, and the barge *Protector* arrived August 11 with Passed Asst. Surg. G. M. Magruder, Marine Hospital Service, and three assistants. An attempt was made to haul some boards borrowed from the railroad company on their carts to the proposed pumping station on Fort Pond, but it was a partial failure; the lumber slipped from the carts and was soon scattered all along the road. These unusual objects in the way frightened the mules and one cart was turned bottom up on the Italian driver, who sustained serious if not fatal injuries to his back and internal organs.

Monday, August 8.—Late last night the Sixth United States Cavalry, under Colonel Anderson, came into the station from Tampa, Fla., with 36 sick, including typhoid cases, in charge of Dr. Ira C. Brown. This command had with it regimental wagons and ambulances, which was the first transportation available at Montauk. They brought also tents and fifteen days' rations. The sick remained on the cars until arrangements could be made to bring them up. One steward and 10 men of the Hospital Corps having reported from Governors Island, hospital tents were pitched on a clean, grassy slope at the site of the general field hospital. Cooking ranges, mess chests, and medical supplies in large quantity were already at the station. Tent flies were spread in the tents and hair mattresses and blankets laid on them, and the sick were soon made as comfortable as possible. Milk was obtained from a man at Amagansett, who came and entered into an agreement to furnish a regular supply each day as needed morning and evening, by train, but it had to be hauled from the station. Ice was purchased from Mr. Parsons, who had a small ice house near the railroad terminus. These supplies continued to be furnished in regular and increasing quantities as needed, and were kept up, notwithstanding many very liberal contributions from individuals and aid societies, because the latter supply was irregular and uncertain. Water was brought to the hospital in barrels on army wagons. On this day a small quantity of lumber and 12 carpenters were secured and the construction of hospitals at Montauk Camp began. The first structure built was the general hospital kitchen. While the building was being erected a cooking range was brought and set up inside ready for operation. There was no time or lumber then to lay a floor, although all the other kitchens were floored as they were built.

Dr. Ira C. Brown was placed in charge of the sick, with Dr. Holmes, Steward Neil, and 10 Hospital Corps men as assistants, all of whom worked hard and took excellent care of their patients. There was great trouble for a while, at first, to get carpenters who would work on the hospitals, because they were afraid of being subjected to quarantine. Then again, seeing an opportunity to profit by the sudden and urgent need of men, they all went on a strike for higher wages. When these difficulties were overcome rain set in, and for two or three days the work of construction progressed very slowly. Hauling, however, continued, and an effort was made to accumulate lumber and medical supplies. Bales of blankets, pillows, and mattresses, and boxes of drugs were piled up under paulins, and tent flies on scantling, and the very limited number of wagons and ambulances labored in mud hub deep until the animals were exhausted. Teamsters unfamiliar with the grounds lost their way and wandered off to other camps, and sometimes left their heavy loads stuck fast or upset in the ruts.

On the following day 14 carpenters reported, but August 10 there were only 2, until General Young came to the rescue and secured a force of 30. It rained hard all the afternoon, however, and little could be done. Captain McMillen was

detailed as quartermaster and commissary of hospitals, and Captain Sewell assisted in the erection and flooring of tents at the detention hospital, working all day in the rain. Tents were set up and floors laid under shelter of the canvas.

Passed Asst. Surg. J. J. Kinyoun, Marine Hospital Service, having reported on the 10th, I obtained through General Young possession of the fishing wharf on Fort Pond Bay and turned it over to him for a quarantine station and landing. Learning from Dr. Kinyoun that the Marine Hospital Service had at Philadelphia a steam sterilizer of 4-foot cylinder, with boiler complete, and not in use, I immediately took steps to procure it, and its prompt arrival was facilitated by the president of the Long Island Railroad Company, who had it forwarded by special freight. It was brought to detention hospital, where a frame building had been erected for it, and a sterilizing plant was established there to disinfect the clothing and bedding of patients from infected ships. I also telegraphed the same day to the Surgeon-General specifications for a suitable laundry plant to do the hospital washing. These were approved and referred to the Quartermaster's Department for construction, but the laundry was not completed and in working order until September 10, a month later.

On August 10 there were 1 steward, 2 acting stewards, 21 nurses, and 50 sick in the temporary hospital tents, which had been floored as lumber could be spared. The dispensary and office were up and occupied, and frames and platforms for tent wards were being built. Sick were being brought in from the camps. More medical officers were called for and quickly came. Letters and telegrams were received from people in all sections of the country offering money and supplies for the sick, and others, representing various aid societies, were on the ground ready to furnish anything needed or useful.

August 11 the Red Cross yacht *Admiral* came into the harbor loaded with 20 tons of assorted supplies, which were brought to the general field hospital, where a storage pavilion was erected for them 15 feet wide by 113 feet long. The Red Cross Society filled this storehouse to the roof, issued the articles freely, and kept it refilled from this time on to about the 18th of September. The Women's National War Relief Association, through Miss Helen Gould, selected a corps of expert cooks and assistants—distinguished chefs from New York and Boston—and placed them at my disposal for service in the general and special diet kitchens of the hospitals, where they remained and exercised their skill in preparing food for the sick. From this time on the army ration was supplemented by almost every article of food to be found in the larders of the best hotels in any city. All offers of aid from outside were promptly accepted, and bales and boxes and parcels arrived by every train. The finest wines and liquors, mineral waters, fruits, eggs, chickens, turkeys, game birds, meats, preserves, and all sorts of delicacies came from day to day in enormous quantities. Four vessel loads of supplies, mostly food and clothing, were landed at different times on the quarantine wharf and distributed to the troops sick and well in camp. A full carload of lemons was sent from California. Others contributed underwear, wrappers, sheets, pillows, cushions, etc., and one donation consisted of 500 reclining chairs, rockers, and sofas.

August 12 four wards at the general hospital were completed and 90 patients were in bed under care of nurses, with all kinds of medical and hospital property in abundance. At detention hospital 125 beds were ready for patients. On this day the Surgeon-General placed in my hands a check for \$1,000, and at a later date \$700 more, for the purchase of ice, milk, chickens, lemons, or whatever else might be needed for the benefit of the sick, and I was urged to spare no pains to provide early and promptly everything that might be required for their comfort. I was bound by no regulation forms, but had authority to order everything direct by telegraph, which I did.

August 13 the first transport from Cuba came into the harbor and 50 sick were landed and sent to general hospital on the following morning. The troops went to detention camp, where hundreds of tents had been already pitched and floored for their reception, under the direction of Brigadier-General Randall, who had command there. I selected Maj. J. P. Dodge, brigade surgeon, volunteers, a most excellent officer, and had him detailed to report to General Randall as medical inspector of detention camps, with instructions to visit daily the different regiments and detachments to find out what they needed and aid them in getting supplies. His report was forwarded to you some days ago. These camps were situated in a beautiful part of the grounds and kept in a most perfect state of police, and the exhausted and fever-stricken soldiers recuperated rapidly while there.

August 14 Maj. C. L. Heizmann, surgeon, United States Army, reported and was assigned to duty as surgeon in charge of the general field hospital—a difficult

and laborious position, as it afterwards proved to be, which he held until the close of its existence. He selected Maj. Ira C. Brown, surgeon, volunteers, as his executive officer. I had one medical officer assigned to duty at the landing to attend to unloading sick from the transports, and one was kept at the railroad station to get out freight and send it up to the hospitals; and later on another was required to be at every departing passenger train to look after the men going on furlough. From this time on there was no lack of carpenters, the weather was favorable, and hospital construction progressed rapidly.

The tent pavilion wards extended outward on either side from a central walk or covered way, with the kitchens and dining halls at one end and the dispensary, storerooms, offices, and officers' quarters at the other. The kitchens were ample frame structures, covered with oiled paulins and equipped with a number of the most approved modern cooking ranges and appliances for general and special diet. Adjoining each of these was a frame building of equal size, covered with boards and tar paper, and provided with a cold-storage room at one end for meat and at the other for milk, while the main portion was fitted with shelving for commissary articles. The wards were floored in one continuous platform 15 feet wide by 113 feet long, on which substantial frames were erected of 2 by 4 scantling for six hospital tents and two flies. One fly intervened between each two tents, to break the continuity and provide ventilation. The whole was then covered by tent flies in the usual way. Each pavilion thus formed a comfortable and convenient ward of 36 beds, arranged 4 on one side and 2 on the other, at right angles, in each tent, with a continuous passageway between. Space under the two flies was utilized for linen cases, storage, water coolers, oil stoves, bath tubs, buckets, etc. A linen case with shelves and locker was built for each fly in every ward.

The dispensary, general office, and storage rooms were of the same dimensions as the wards. The female nurses were quartered in a series of pavilions 15 by 42.4, being three continuous hospital tents with floor and frames. There were 27 of these pavilions for the trained nurses and Sisters of Mercy and others for post and express offices, chapels, mess halls, storerooms, isolation wards, dead houses, and for relatives visiting the sick. The female nurses were in three camps, each provided with their own kitchen, storeroom, and mess hall. The medical officers occupied wall tents with floors and frames, and the hospital corps and male civilian cooks, nurses, and laborers, common tents. At detention hospital the arrangement was varied to suit the ground and for better isolation of cases.

The number of carpenters kept on this work ranged from 75 to 100 per day, as many as could be conveniently supplied with lumber without diverting it from other purposes. Vast quantities of boards and scantling were required for flooring tents at the camps, and for storehouses, sinks, and other buildings; and teams that had to haul this and other freight were limited, as well as space for loading at the platforms. Soldiers' tents were floored in every camp as fast as possible, but the troops soon began to come in such numbers that this could not be completed in all cases until after their arrival.

August 15, the detention hospital received its first consignment of 60 patients from the *St. Louis*, an infected ship. There were then 210 sick in general hospital, with many vacant beds and plenty of supplies. Surface pipe had been laid to the hospitals, and water from Fort Pond was pumped direct. Work on the 30,000-gallon tank was in progress. The pump was connected with the well three days later, August 18, after which the water came from there. It was distributed through iron pipe laid on the ground. The total length of pipe laid amounted to about 12 miles. When the tank was finally completed and filled it appeared that by some mistake in calculation there was not sufficient pressure to carry water through the pipes, and direct pumping had to be continued as before. The tank was then used to fill water wagons for sprinkling the roads.

August 16, we had 750 beds. In general hospital 240 patients, and in detention hospital 62, with 150 ready to land. The yellow-fever tents contained 2 patients. There were tons of supplies at the station, which we were trying to get up. Roads bad and animals exhausted. Ambulances, 11. The one difficulty was then and had been from the start lack of enough transportation. The Surgeon-General ordered the erection of another hospital of 100 tents, and authorized the making of contracts with doctors, nurses, and cooks. Built quarters, kitchen, dining room, bath house, etc., for female nurses.

The question of sending patients, especially typhoid cases, to New York, New Haven, and other points, had been considered and authority from the Surgeon-General obtained; and on August 17 the Red Cross yacht at New York was offered and accepted by telegraph for that service. Miss Quintard and 13 female nurses reported, also several male nurses and cooks selected by the Women's National War Relief Association.

August 18, the general hospital was completed and work on the annex begun. The Red Cross yacht reported. It was a private yacht fitted up with elegance and comfort and had a capacity of 15 beds. One medical officer, 1 male and 2 female nurses with all necessary medical supplies were placed on board and regular daily trips commenced, carrying sick mostly to New Haven, New London, and Bridgeport hospitals. This convenient and comfortable little vessel continued in service without interruption until the breaking up of the camps. We needed a larger transport suitable for carrying the sick, which was supplied by the elegant passenger steamer *Shinnecock*, August 30. There was great pressure from men at the camps to get into hospital where delicacies were served and where furloughs with transportation to and from their homes were given. At this time the general hospital had 430 patients, 8 doctors, 50 hospital-corps men, 30 female and 8 male nurses, and 6 cooks; in detention hospital 300 patients, 7 doctors, 20 hospital-corps men, 5 cooks, and a proportionate number of nurses not stated. Regular medical supplies and delicacies reported abundant, with outside contributions coming in from all directions. Doctors, nurses, cooks, and hospital-corps men were employed and came in large numbers as the sick in hospital increased. Many medical officers were detailed to duty with the regiments in camp. The whole number of female nurses, contract and volunteer, was 312, of whom 103 were Sisters of Charity.

August 19, the transports *Comanche*, *Mobile*, and *Seneca*, with a large number of sick, were in the harbor. I had 250 vacant beds at the general hospital. After 150 of the worst cases had been brought up it was late and the animals were exhausted. Operations were suspended until the following day, when more wards were ready and all sick were taken in and provided for. Every patient as he landed from the ambulance was offered hot soup and milk punch from the hands of the female nurses and was placed in bed on a hair mattress.

August 20, 5 new wards at the annex were completed and as many more under way. There were a large number of vacant beds ready at detention hospital, and I felt confident of being ready to take the sick as fast as they would come, but I was anxious to find means of sending some to other hospitals. August 21, I therefore selected the *Rio Grande*, one of the transports, and placed Maj. J. L. Powell, surgeon, United States Army, in charge to prepare her for a load of convalescent sick to be sent away. The Surgeon-General telegraphed that the *Olivette* on arrival should proceed with her sick to Boston, which she did. Large numbers of convalescents able to travel were leaving the hospitals every day on furlough. Those from detention hospital were given a medicated bath and provided with a complete suit of new clothing just before going away, and all bedding and effects left behind by them passed through the steam sterilizer. At the general hospital and annex the sterilization of soiled linen from typhoid and diphtheria cases was accomplished by means of formaldehyde gas in a tight, double-lined frame building, erected and provided with a Kny-Scheerer generator.

On the 23d the *Rio Grande*, with Surgeon Powell and a corps of doctors and nurses and supplies, sailed, taking 300 convalescent sick to the military hospitals in New York Harbor.

August 24, heavy rain and wind prevailed during the night, but the tents on frames stood firm and the patients were comfortable. Just sixteen days had passed since the first nail was driven in the construction of hospitals at Montauk, and there were 1,700 beds ready for patients and 1,465 sick under treatment, besides all those who had been treated and sent away. The death rate was remarkably low, notwithstanding the extremely unfavorable condition of many cases as they came from the transports. The sick were receiving better attendance and more supplies than are usually furnished in city hospitals. Physicians, surgeons, and nurses of the highest skill and training were in waiting, and devoted themselves with zeal and energy to their duties. The Secretary of War visited the hospitals on the 24th and 25th, and again on the 30th the President, Vice-President, and party arrived and went through all the wards. The Surgeon-General came later, and under his instructions the sick were transferred as rapidly as possible to other hospitals in the neighboring cities and military posts. Accommodations were offered on all sides, and transports were sent to take as many as were able to be moved.

From the 25th of August to early in September patients came in great numbers from the transports and from camp, many intending to go on sick furlough, which they did at the rate of 200 a day. The capacity of the field hospitals was rapidly increased accordingly up to 2,500 beds, and three division hospitals were organized to accommodate 600 more. The total number of beds sent up from the medical purveyor in New York was 3,300, and other articles in proportion.

August 30, the steamer *Shinnecock* reported to me, and Maj. W. C. Borden, surgeon, arrived with the *San Marcos*. The latter vessel was not well suited to carrying the sick, while the former was splendidly equipped with every convenience and comfort, I therefore transferred Dr. Borden, with his medical officers, nurses, and abundant supplies to the *Shinnecock*, and placed 200 sick on board to go to the military hospitals in New York. This steamer made regular trips thereafter to New York and return every two days, taking from 200 to 300 sick each time.

St. John's Hospital, Brooklyn, sent up two cars, which made several trips with convalescents to that institution. The steamers *Fall River* and *Bridgeport* and other smaller craft came across the Sound and took patients to the hospitals in Providence, New London, and Bridgeport. The transfer of patients and the granting of furloughs continued, and the last of the transports from Cuba having arrived, there were, September 10, over 1,000 vacant beds in the three field hospitals that in the short period of one month, had been constructed and equipped and had served for the treatment of 9,000 patients.

In anticipation of the chilly nights and high winds of September, the Surgeon-General ordered that some of the tent wards should be boarded up and provided with stoves for better protection to those patients who for some time could not be moved. A simple plan for changing the tent pavilion into a frame ward had already been devised, and on September 10 window sash, stoves, hardware, etc., were ordered for 5 such wards, and the construction begun at once. Two of these were practically completed and others under way when my duties at Camp Wikoff having been completed, on September 12, I was relieved to join my proper station by the following order:

[Special Orders, No. 215.—Extract.]

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 12, 1898.

17. By direction of the Secretary of War, Col. William H. Forwood, assistant surgeon-general, United States Army, is relieved from further duty at Camp Wikoff, Montauk Point, New York, and will return to his proper station at the United States Soldiers' Home, Washington, D. C. The travel enjoined is necessary for the public service.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

REPORT OF COL. CHARLES R. GREENLEAF, CHIEF SURGEON, ARMIES IN THE FIELD, ON THE SANITARY CONDITIONS AT CAMP WIKOFF, MONTAUK POINT, LONG ISLAND.

[Dated November 1, 1898.]

In compliance with your telegraphic direction I have the honor to submit herewith a report upon "the sanitary condition of the troops at Camp Wikoff since its occupation with statement as to provisions for care of sick," etc.

In view of the fact that my service at this place commenced at so late a period, and I was ignorant of any of the antecedent historical data necessary for making such a report, I called upon the heads of the various departments at the camp, and, also on Colonel Forwood, who organized the hospitals, for statements of their work; these have been compiled in the following report:

In transmitting to me, under date of September 20, 1898, the data which is embodied in this report, Maj. Ira C. Brown, surgeon, United States Volunteers, states:

"I desire first to say that the medical officer in charge of the detention hospital has aided me greatly in obtaining the facts pertaining to that institution. I also desire to thank Lieutenant Durfee, of the Engineer Corps, for information that would be difficult to obtain without his cooperation. I am also indebted to the Signal Corps for kind assistance, and to the various aid societies who have been engaged in relief of the sick.

"It is only fair to say in this connection that the detention hospital has been made a model of its kind under the direction of Major Ebert, and that those in charge prior to his administration did heroic work at a time when there was no opportunity to perfect an organization.

"Major Almy, who had charge of the annex hospital, rapidly perfected his organization, and soon had a model institution, which remained a monument to his executive ability until all the hospitals were combined under the head of the general hospital.

"The success of the general hospital, through which the other hospitals received their supplies and to a certain extent their inspiration, is largely due to the efforts of Major Heizmann, who has been a tireless worker under many trying circumstances.

"Major Thomason, superintendent of wards of the general hospital, has been a very efficient officer, having had charge of the shipment as well as the receiving of most of the patients since he has been on duty here. His work has been so well performed that no accident or even discomfort to the patients has been noticed.

"The officers and contract doctors who have been on duty here in a professional capacity have all made good records for themselves, having worked faithfully and conscientiously for the patients intrusted to their care.

"It is a matter for congratulation that a hospital of this size, springing into existence in so short a time, should have such an able corps of physicians and nurses, and proves to my mind the unselfishness of the individuals connected with the medical department. The same can be said of the nurses, and when I speak of nurses I wish to be understood as including the Sisters of Charity and the trained nurses.

"Personally, I wish to thank you for the many courtesies received at your hands, and trust that the information furnished herewith may be of service to you in determining the success or failure of the medical department at Camp Wikoff."

Water supply.—The following report in regard to the water supply, the pumps, the wells, the piping and hauling of water, the filter plant, etc., is furnished by Col. Willard Young, commanding Second United States Volunteer Engineers:

"The work of supplying water to camp was inaugurated by Colonel Hecker and Colonel Miller, of the quartermaster's department, who had placed Mr. Clinton Smith in immediate charge, practically as superintendent of waterworks.

"Immediately upon the arrival of this regiment in camp, on August 15, a request was made for a detail to assist in laying pipe. A detail of 24 pipe fitters was at once sent out and proceeded to work under the direction of Mr. Smith, reporting to him each day until August 17, when charge of the water supply was turned over to me by verbal orders of Maj. Gen. S. B. M. Young, and Capt. Fremont Hill placed in immediate charge. At the time of my arrival, August 15, the condition of the water supply was as follows:

"A pump had been set up on Fort Pond and a pipe line laid from it to the general hospital, and a branch line to detention hospital, with one outlet at each hospital. Work was just being begun on erecting a tank on the top of the hill a few hundred yards from the pump. In all, about 8,000 feet of pipe had been laid. The pump was in operation, supplying water for all purposes from Fort Pond, and it continued in operation until August 18, when well water was first supplied. At the same time, by an agreement with Colonel Hecker, Mr. C. A. Lockwood, a contractor from Jamaica, Long Island, was engaged in sinking a well at a point a few hundred yards from Fort Pond, near the present camp of this regiment. This was the first well put down, and will therefore be referred to as the first well in this report. It is the one with the greatest capacity, and the one at which the filter plant is located. The agreement with Mr. Lockwood included sinking this and another well, on a site to be selected.

"The first well was connected to the pipes on August 18. It delivered an amount of water satisfactory to Colonel Hecker, and was approved by him. Mr. Lockwood then began to sink the second on a site which had been selected by Colonel Hecker and Colonel Miller. This well was located at the edge of Peters Run, in a place likely to receive the surface drainage of the detention camp and hospital. Seeing the danger likely to result from the use of this well I consulted with Major Meacham, surgeon of my regiment, who strongly condemned its use. I then reported the matter to Colonel Forwood, who also condemned it, and General Young ordered its abandonment. A new site on higher ground was selected, and another well put down by Mr. Lockwood. In driving this well, at a depth of about 35 feet a large boulder was struck. At this depth the well had a capacity of about 80,000 gallons, instead of 500,000 as agreed upon, and the supply has materially diminished since. It was not recommended for acceptance as fulfilling the contract, but was nevertheless accepted by Major-General Young on account of the urgent and immediate demand for water. This completed Mr. Lockwood's agreement with Colonel Hecker.

"Owing to the small amount of water supplied by the second, or Peters Run well, and the great length of pipe line between the first well and some of the camps to which it was supplying water, as well as to the fact that it was not known how long the camp here would be maintained, and that in case of breakdown of the

pump or failure of the first well the camp would be left without water, I recommended that another well be put down.

"A contract was entered into with Mr. C. A. Lockwood to sink another well, to have a capacity of 500,000 gallons per diem, on a location near Lake Wyandanne, beyond all camps, and hence out of reach of contamination from surface drainage. This well was to be sunk for \$1,000. Mr. Lockwood finished work and withdrew his tools from this well on September 9, but the pump was not yet in the well at that time. The well was driven into fresh water at a depth of about 30 feet, and being driven deeper reached brackish water after passing through a clay stratum. The point was therefore withdrawn to where fresh water was found. This well yields only about 75,000 gallons per diem.

"The source of water here is undoubtedly the rainfall water sinking very rapidly through the sandy soil until it reaches a level somewhere near sea level, where it remains. There are in some places strata of earth or clay which cut off the flow in particular places, but there does not appear to be any continuous stratum of such material. The water in its natural condition is wholesome; the sole danger to be feared is that it will become contaminated with the impurities which will by degrees percolate down from the surface. Very little water runs off of the surface during a rain storm; most of it sinks into the soil. Most of the drainage is caught in basins and held to evaporate or slowly percolate downward.

"Not knowing how long the camp would be occupied, and seeing danger from contamination due to the presence of so many men and animals on the ground, I recommended that a filter be installed as an extra precaution against disease. This met with the approval of Major-General Young and yourself, and of the Secretary of War, who on August 30 authorized an expenditure of not more than \$7,000 for this purpose. A contract for the immediate installation of two filters with a capacity of not less than 300 gallons per minute was entered into with the New York Filter Manufacturing Company.

"The elevation of the ground occupied by some of the camps at Montauk Point varies from a few feet to about 100 feet above sea level. The tank erected on the hill a few hundred yards from the first pump was not at an elevation sufficient to make it of any value in supplying water to the camps, and it is necessary to pump directly into the pipes, at a pressure as great as 120 pounds, to force the water to all points on the pipe lines. The tank is filled at night and the water drawn off during the day for sprinkling purposes. Another tank has since been erected and is used for the same purpose.

"On August 19 I divided the work of looking after the various matters intrusted to me among the officers of the Second United States Volunteer Engineers, assigning to Lieut. Col. E. W. Burr and Capt. Fremont Hill the immediate charge of all the work on water supply.

"About 12 miles of pipe lines were laid up to September 15. On these lines there are 178 faucets, with about 477 feet of three-fourths-inch pipe and 37 feet of 1-inch pipe used as connections.

"The water has been partially shut off on a few occasions; once on account of breakdown of the pump installed at the well first put down, and at other times on account of the pipe being stopped up with large pebbles in an inexplicable manner.

"There have been in continual use 11 water wagons hauling water from the wells to the hospitals and to points not supplied with water by pipe lines, and in sprinkling roads in front of the general hospital and elsewhere. Since September 4 these wagons have been under my supervision, and Lieutenant McAndrews, Second Regiment, United States Volunteer Engineers, has had immediate charge of them.

"Owing to the limited supply of water, only the road in front of the general hospital was sprinkled at first, but since the completion of the tanks, which are filled during the night, there has been plenty of water for both purposes."

The following additional statement in regard to the water supply at Camp Wikoff is from the report of Lieut. Col. Charles Smart, made to the Surgeon-General September 10 in compliance with instructions:

"The water supply of the camp and hospitals is taken from a well about 200 yards from the eastern margin of Fort Pond. A free supply was found at a depth of 40 feet below the surface. Two strata of clay—one near the surface, the other at a depth of 25 feet—separate the well water from surface contamination. It is distributed by about 8 miles of pipe, and is on tap in each of the regiments. Two of the regiments, the Ninth and the Thirteenth Infantry, are provided with Pasteur filters in their company kitchens.

"The following tabulation shows the results of a chemical examination of the water by myself on Thursday, September 8, immediately after the samples were drawn:

	Fort Pond water.	Well water.	Tap water.
Chlorine.....	62.00	3.00	3.00
Nitrite.....	None.	None.	None.
Oxygen required.....	.875	.075	.075
Free ammonia.....	.0025	.002	.003
Albuminoid ammonia.....	.048	.003	.003

"The figures represent parts per 100,000 of the water.

"The Fort Pond water is unfit for use as a potable water. The other samples are organically pure.

"I have instructed a medical officer to examine this water from time to time to note any change in its character.

"With this satisfactory water supply and the good sanitary condition prevailing in the regimental camps, I have no hesitation in saying that the troops could stay on their present ground in winter quarters without any such outbreak of typhoid fever as has occurred at Camp Alger and at Chickamauga Park."

On September 16 Acting Asst. Surg. Llewellyn P. Williamson made an examination of the water and reported as follows:

"I have this day examined the water supply of this hospital and found it the same as when examined by Colonel Smart last week. It is pure water, albuminoid ammonia being almost entirely absent."

Transportation facilities.—In regard to the facilities furnished for transportation, Dr. Brown states:

"When the first troops arrived at Montauk (the Sixth Cavalry) there were scarcely any means of transporting supplies except that brought by the cavalry outfit. With the Sixth Cavalry came its sick, in the baggage car which arrived at Montauk about 4 a. m. August 8, 1898. There were ten ambulances parked near the station, and with these the sick were taken to what is now the general hospital. At that time there were no tents and no provision whatever for the reception of these men, and the medical officer in charge erected tents and had the sick (some 30 in number) under cover by 11 a. m. the same day. There were no cots, no mattresses, and only one blanket for each man. It was raining at the time and the ground was wet. There was no lumber on hand to put floors in the hospital tents, and consequently the patients were laid on the ground. These men were suffering from different diseases contracted in Tampa, Fla., and which developed on the way to Montauk. The greater portion had typhoid fever, quite a number malaria, a few cases of dysentery, and one of measles.

"There was no food for these men, nor could any be purchased at this end of the line. The medical officer, however, made arrangements on the way here to have milk sent by the first train arriving that morning, and to continue the supply until further orders. There was enough with the sick to last until the supply came.

"The medical officer found the location for the general hospital very early in the morning and before any of the officers here were at the site selected. Early in the morning General Young and Colonel Forwood came to the proposed site and did all that men could do to make the sick comfortable. Here was the first lack of transportation. There was some lumber at the station, but only one team to haul it. There were two carpenters waiting for lumber to go to work. When the officers in charge were able to get the lumber here it was used at once for putting floors in the tents erected, and the sick were transported to more comfortable quarters.

"Slowly the facilities for bringing up the lumber were increased, and also the number of carpenters. From day to day transportation facilities were increased until finally the lumber came in great quantities, and there were nearly 100 carpenters at work, but as the working force increased so did the number of patients. Transports commenced to arrive, and the sick came pouring in all day, and frequently into the night, and only by the constant application to duty by Colonel Forwood were the patients able to be housed, let alone making them comfortable.

"It was thought necessary to get the lumber up if other departments had to suffer, for without a house other material would be of no consequence. As soon as it was possible cots and mattresses were brought up and the patients were placed upon these mattresses and made quite comfortable. It was almost impossible to find transportation for medical supplies and hospital furniture. At first

there were no medical supplies here except those brought by the medical officer of the Sixth Cavalry, which consisted of one medical and one surgical field chest, which had done duty all the way from Tampa here, and were more or less depleted.

"Colonel Forwood had great trouble with the carpenters, who came from some distance and would not remain here over night, but insisted on returning by a morning train, and they seldom got to work before 9 or 9.30 in the morning.

"The quartermaster's department did not show the interest in the matter that the situation seemed to demand. It is not my purpose nor desire to reflect upon the quartermaster's department, but it is only simple justice to say that supplies came to this hospital only by the personal efforts of officers who should have been on duty elsewhere and not compelled to go the quartermaster's office and beg for supplies that everyone knew were badly needed.

"Another great obstruction to getting supplies promptly was owing to the fact that cars came in billed as medical supplies, and when located and opened the boxes were not marked with their contents. Consequently hundreds of packages came to the hospital which were not needed at the time and that have been used very little since. Many of the boxes were so large that there was not force enough at times to handle them. It would seem upon reflection that anyone intrusted with packing of supplies of this nature would see the necessity of having boxes not larger than two men could handle and of having their contents plainly marked on the outside.

"The story of transportation could be made a volume in size, but it can be covered in a single statement, and that is, that so far as this hospital is concerned the service rendered by the Quartermaster's Department up to the beginning of September was very poor."

Hospital construction.—The hospital construction was under the charge of Colonel Forwood, who worked hard all day and frequently far into the night, using every effort at his command to hurry along the building of the hospital. He was greatly handicapped in this work, owing to the lack of transportation and material for building purposes. The selection of ground for tentage was looked after by him personally. His desire to make his hospital a model one was appreciated by all who were on duty here, and his aim to make it a monument to the success of the Medical Department of the Army has been realized.

The success of this great hospital is due entirely to the efforts of Col. W. H. Forwood.

Surgical wards and work.—Colonel Forwood, in his plan for the construction of a hospital, laid out one row of tents for a surgical ward, one tent for disinfecting, one tent for giving anesthetics and preparing surgical dressings, one for operating, and three for the reception of patients immediately after operation, and another pavilion of twelve tents for convalescent surgical patients.

The surgical wards were models of modern field equipment, the operating tent being provided with everything essential to asepsis and to facilitating operative procedures. An especial diet kitchen was completely equipped. The nursing was done by Sisters of Charity who had been specially trained in their surgical work, and the selection of supplies and apparatus was carefully made. The whole section was organized by and under the charge of Lieut. Col. Nicholas Senn, chief surgeon, United States Volunteers, who had for assistants Major Adams, chief surgeon, United States Volunteers, and Acting Asst. Surg. H. S. Greenleaf, United States Army. About 115 cases were operated on, with no deaths. As I understand that Colonel Senn is to publish the result of his work in these wards, I prefer to leave a description of the surgical work to him, merely adding that so far as my observation went the results show that it was the perfection of modern field surgery.

Annex hospital.—The general hospital, comprising 130 ward tents, and having a capacity for 780 patients, was soon found inadequate to meet the demands made upon it, and an annex, comprising 106 tents, and affording additional capacity for 636 patients, was commenced and completed in ten days. This was found to meet emergencies for a time, but it soon became evident that still more hospital room would have to be provided. Consequently a second annex was built, which accommodated about 400 patients, making the total capacity of the general hospital and its annexes nearly 1,700.

The work of the female nurses at this hospital has proven their worth for this particular service. They entered upon their duties with great enthusiasm, and while some of the male nurses complained of the amount of labor they were compelled to perform, there was never a complaint from the female nurses on account of their work or on account of the accommodations afforded them for rest. To them must be credited in a great measure the low death rate in this hospital, for on no occasion were the patients left a moment or neglected, and in this way medical help was summoned and many a patient received aid just at the time to save his life.

Total number of sick passing through hospital.—The records of the hospital show the total number of sick passing through the general hospital up to September 17, 1898, to have been 6,564; through the detention hospital up to the same date, 1,640; and those passing through the division hospitals brings the number of sick handled in the hospitals in this camp up to about 10,000. Estimated number that will pass through the general hospital, 7,264. Of course this does not include the furloughed men who pass through the hospital, which number several thousand. The above figures include only those who received treatment and were regularly admitted to the wards.

There were present 720 patients in the general hospital at the time the above statement was written.

Hospital staff.—The total number of medical officers, comprising commissioned regular and volunteer surgeons, and contract surgeons, on duty while the hospital was at its greatest capacity, consisted of about 40. In the early part of the establishment of the hospital the hospital corps comprised 1 hospital steward, 1 acting hospital steward, and about 60 hospital-corps men, which was later augmented by the addition of 2 hospital stewards, 9 acting stewards, and about 60 additional privates. The total number of female nurses since the establishment of the hospital averaged about 100; Sisters doing duty as contract nurses also about 100; contract male nurses on duty at the hospital averaged about 50. In addition to these there were about 15 contract cooks who were on duty at the general hospital. This estimate includes all those on duty at the annex hospital.

Detention hospital.—The following statement is from Acting Asst. Surg. H. C. More:

"This hospital was opened August 14, 1898, and I continued alone and in charge till August 18, 1898, when I was relieved by Captain Winter, having at that time about 85 patients, with no deaths. I then took charge of the quarantine tents until August 25, having exclusive charge of the five yellow-fever suspects, all of whom recovered. On that date the quarantine was raised, and I returned to duty in the camp. I took charge of half of the second row for one day and then of row 1, having 120 beds, all full, and also of the officers' pavilion August 28, and of half of row 8 August 29, other surgeons relieving me. On about August 31 my patients were moved to Pavilion G, where I still am.

"During this time I have treated patients as follows: Until August 18 about 85 patients, all here when I went to quarantine; August 18 to 25, 5 patients, all since recovered; August 25, about 55 patients in row 2, turned over to Dr. Carson; August 26 to 28, row 1 and Pavilion A, turned over to other surgeons, about 125 in all; since August 28, about 110 cases, of which 24 were sent to New York, 8 to general hospital, and the balance sent on furlough, with 2 dead; total 295 cases. Sent to other wards, 184; sent to other hospitals, 32; dead, 3; furloughed, 76."

Captain and Assistant Surgeon Winter, United States Army, was placed in charge of the detention hospital August 17, 1898. He submitted the following statement:

"At that time there was 1 physician in charge, and 6 Hospital Corps men. Dr. H. G. More and Dr. W. R. Booth, with myself, constituted the medical staff for the next two days. There was no organization at the time I joined the hospital, although Dr. More had worked earnestly and faithfully to provide for the needs of some 60 patients. The kitchen was of ample size and range capacity, but for three days after taking charge there were no cooks save a few pronounced amateurs and neophytes in the culinary art. Fortunately the supply of prepared foods (cereals, etc.) was large and the sick were fairly well nourished. Of drugs there were almost none, most of the very essential articles being lacking. All of this was remedied the following day, when a good supply of all essentials, including two cooks, came from the general hospital, where all the officers cooperated most heartily with me in the effort to provide suitable supplies for the sick. During the next few days the accommodations of the hospital were materially increased by the very efficient work of the engineers under the command of Captain Cook. They pitched a number of hospital tents, set up bunks, and by putting in an abundant water supply solved a problem which had hitherto been a grave one. The increment of sick at this hospital was of the most uncertain character. One afternoon, with 6 Hospital Corps men, including cooks, to aid me, I fed 170 men of the Seventy-first New York Volunteers, who had just come off a transport and who clamored for food with the combined importunity of an India famine and a nursery. Fortunately there were some prepared soups on hand (the gift of Mr. Howard Townsend, representing the Red Cross), and with these and some bread I succeeded in staying the clamors of a lot of men who were eager as only a dearth of food can make men eager.

"The details of such a situation can scarcely be elaborated on paper. I could amplify the arrival of sick officers and men and point to the incoming of ambulance after ambulance, each with its full complement of sick, arriving from 10 p. m.

to morning, with no notification of their incoming and no provision for their reception. The provision of one blanket became a study, and to exercise discrimination in their distribution was tantamount, in the soldier's opinion, to a personal assault upon his rights. Transports bearing sick were constantly arriving at Montauk from infected ports, and the element of detention was insisted upon in no unequivocal terms by the authorities. To one familiar with the multifarious details of a field hospital, and cognizant of the time necessary to the establishment of such an institution, it will not seem unreasonable or even unfitting that accommodations should be crude and simple for the first few days. The supplying of kitchens, cooking utensils, cooks, tents, beds, mattresses, pillows, sheets, pillowcases, buckets, basins, commodes, bedpans, urinals, lights, dishes, tableware, towels, and the thousand and one other things necessary for the comfort of sick takes time, and when the recipients are dependent on a one-track railroad the difficulties are enhanced. I have distinct recollection of the great efforts put forth by the chief surgeon (Colonel Forwood) to provide for the needs of this hospital, and it was due to his untiring work that the hospital was in good running shape when I left it on the 23d of August."

Dr. J. F. Cronin, acting assistant surgeon, United States Army, was left in charge of the detention hospital after Captain Winter left, and remained in this capacity until August 27. Maj. R. G. Ebert, surgeon, United States Army, took charge of the detention hospital August 27, 1898. He states:

"At that time the hospital consisted of 60 single hospital tents and 4 pavilions of 6 tents and 1 fly each, as wards for patients, with 4 single tents detached some distance as an isolation ward; an administration pavilion of 2 tents and 1 fly; another pavilion of 3 tents and fly as bathroom, storeroom, and officers' dining room; a frame kitchen with 2 ranges; an incomplected disinfecting plant; a single wall tent for morgue; besides tents for officers and attendants.

"There were on duty 6 acting assistant surgeons, 41 privates of the Hospital Corps and privates who belonged to volunteer organizations whose status was undetermined, there being no orders or descriptive lists at this hospital, 3 civilian cooks, and 6 civilian and volunteer nurses. Supplies, implements, and medicines were limited, many necessary articles being entirely missing. The food appeared to be the regular army ration supplemented by a supply of milk. Clothing for issue to patients consisted of a small quantity of articles of uniform and some few Red Cross supplies.

"Physicians and nurses were overworked, and the wants of patients, in spite of best efforts of all, were not always promptly met. Records did not exist, except a directory of patients, in which some information relative to arrival and disease was noted. Stationery, books, and blanks there were none. No reports were rendered by the attending surgeons, and but a very limited number of 'registers of patients' were in use.

"Requests were made for a detail of 50 men from the line to assist in the work of attending to patients. This was filled imperfectly, and many of the men reporting absented themselves, while others, being themselves convalescents, became sick, 14 of the 40 present on second day after reporting being sick, as were also 10 of the Hospital Corps.

"Additional surgeons, entirely unfamiliar with army work and methods, reported the following week. Hospital Steward George W. Muller, United States Army, reported for duty on the 28th, and of his services I can not speak too highly. Being informed that no hospital stewards or acting hospital stewards were available, I requested and was given the detail of 3 privates of the corps in that capacity, and their services were of value.

"Female nurses under Miss L. A. Hughes, M. D., reported for duty on August 28; that day 9. The succeeding days these were increased by arrivals from New York, Michigan, and Massachusetts. The following table shows the status of hospital in various respects on the date I assumed charge; on the date of the greatest number of patients; on the date when orders were received to admit no more patients, and at present date:

	Aug. 28.	Sept. 5.	Sept. 11.	Sept. 17.
Surgeons.....	6	16	16	6
Hospital Corps.....	41	42	45	45
Male nurses.....	6	7	7	5
Female nurses.....		48	57	26
Cooks, civil.....	3	4	4	2
Laborers.....		46	44	8

a Includes 1 steward, 3 acting stewards; the others privates.

"Total number of patients received in hospital, 1,850; died, 62; transferred to other hospitals, 415; furloughed and sent to regiment, 1,107; remaining (September 17) 60.

"A diet kitchen was commenced on August 29, with 2 oil stoves and tomato cans as utensils. As rapidly as possible this was increased and now occupies a pavilion of 3 tents and a fly; there are in use 2 ranges and 6 persons are employed. I can not say too much of its value, and Miss Fennessy, in whose charge it was placed, is worthy of the highest praise.

"The policing of grounds was at first under charge of Lieutenant Rowell, Fifth Cavalry; afterwards Lieutenant Jackson, United States Volunteer Engineers. While the work of construction was continued (September 13), it was difficult to keep grounds in the best of shape; but after the arrival of sufficient noncommissioned officers to properly oversee employees, the work was done satisfactorily.

"Medical supplies were obtained from general hospital, and after the 4th or 5th of September were ample. Previous to that time there was a shortage in some drugs and at times the preparations were not such as were desired by the prescribing physician.

"Stores for the sick were obtained by purchase, and also from the Red Cross and many organizations for the relief of soldiers, and gifts of private individuals. It is difficult to tell how much was thus donated. The lack of clerical force and competent men to take control rendered an accounting of property impossible. It became the first and only aim to take care of the sick at no matter what expense of material or labor. The unpreparedness of this hospital to care for its sick at first and the constant building operations necessitated a vast amount of discomfort to patients and loss of time and labor to attendants; especially was this due to the system of single hospital tents.

"At present there is no complaint to be made excepting lack of noncommissioned officers and proper clerical assistance. It is only by working from 5 or 6 o'clock in the morning till late at night that progress can be made in straightening out records, which must be so valuable in the future to Government and patient; and here again must I give credit to Steward Muller, who, familiar with the papers of the medical department, is the only one competent to do this work besides myself of our present force.

"In conclusion, permit me to call attention to the magnitude of the task considering the limited amount of properly instructed material to do the work. A command equaling a regiment, a time of emergency, with more or less discordant elements, to be fed, clothed, cured, and furloughed is a difficult task to accomplish within the space of a month, and the many imperfections must be given the benefit of this excuse. To Dr. C. M. Lee, whom I appointed executive officer September 1, and to the many willing volunteer aids in the work, I desire to give this token of my appreciation of their services."

Construction and equipment of steam laundry.—The provisions made in connection with the laundry work of Camp Wikoff are very fully set forth in the following statement of Capt. G. L. Goodale, assistant quartermaster, United States Volunteers:

"I arrived at Montauk at noon August 12, 1898, to take charge of the work of constructing and equipping a steam laundry for hospital work.

"On the morning of August 13 location for building was selected at a point southwest of the infantry camp, between Atlantic Ocean and Fort Pond; this place being chosen that fresh water for laundry work might be drawn from Fort Pond and refuse water conveyed to the ocean, thus avoiding all danger of infection from any work done. On this date I made contract with American Laundry Machinery Company, through their New York branch, for all necessary machinery to fully equip a laundry capable of doing the work for all hospitals—general, detention, and division. Price to be \$3,000, they to place the machinery in building in good running order in nine working days after building was ready and machinery had arrived there. In the event of failure on their part to do the work in the specified time it was stipulated and agreed that they should forfeit \$50 for each and every day's delay. Arrangements were made by Colonel Hecker with Mr. Hyde, of Grace, Hyde & Co., for erection of building.

"August 15 the greater part of lumber for building arrived at wharf, but as all wagons possible were being employed in transporting troops and baggage, arriving from Cuba, to camps, it was not until the 17th that any was teamed, and then only a small quantity. Not until the 21st was all the lumber and materials for building upon the ground.

"August 18 carpenters began work in a small way, and on 19th sills for building were laid.

"August 23 I notified the American Laundry Machinery Company that building would be ready for machinery Wednesday morning, August 24.

"August 24 machinery arrived at railroad station. Mr. White, chief engineer of company, and 3 assistants came to place same in position. - Owing to lack of transportation, delay occurred in getting machinery to building, the last piece arriving on the afternoon of 26th.

"September 1 received authority from Quartermaster-General to employ civilian laundrymen.

"September 3 started work, all machinery having been put in place in running order completed on the 2d. Owing to the difficulty in getting employees to come here from New York, had only 5 men of the necessary force of 12.

"September 4, after working one day, it was demonstrated that the pump put in by the contractors would not give sufficient water supply from the location of pump house near the shore of Fort Pond. I at once wired the company that a larger pump would have to be supplied. On the 8th a new one arrived with men to put it in position. Change of pumps and laying of larger steam pipes to pump house completed on September 10.

"September 7, employees arrived from New York, completing requisite force—10 civilians, 2 detailed men.

"Water is obtained through 425 feet of 1½-inch iron pipe from Fort Pond, and refuse water conveyed to ocean through 650 feet of 3-inch pipe. Pipe furnished and laid by Second Regiment Volunteer Engineers, Colonel Young commanding.

"Handicapped though the work has been by delays caused by want of employees for four days, and short supply of water necessitating many stoppages from September 3 until September 10, fair progress has been made; from September 3 to September 19, inclusive, 23,670 pieces of work were sent from laundry to different hospitals.

Medical supplies.—So soon as it was determined by the Government that a camp should be made at Montauk Point, the Surgeon-General gave orders to the medical supply officer at New York to ship to that point articles of every kind that might be necessary to equip the hospitals in the most thorough manner, and to spare neither labor nor expense in the work.

He instructed Colonel Forwood to call by telegraph for additional articles, and directed the medical supply officer to honor all such requisitions without delay or formality.

A vast amount of property was thus accumulated, and although the large and numerous hospitals were fully equipped there was at the time of my visit a sufficient quantity of surplus stores to have equipped another hospital of equal size.

An idea of the amount of this kind of property that was furnished by the Medical Department may be gained from the fact that of beds and bedding alone there had been shipped 3,452 cots, 3,000 mattresses, 18,254 sheets, 7,675 blankets, and general medical supplies such as drugs, hospital comforts, surgical instruments and appliances, furniture, table and mess ware, and other miscellaneous property for 12,000 men, comprising no less than 54 carloads of supplies. In addition to this, there were sent for the division field hospitals 400 cots with bedding complete, all without formal requisition, but solely on the order of the Surgeon-General, from Washington. Five thousand dollars of public money was also sent to a medical officer, appointed as disbursing officer, for the purchase of such property as was not on the supply table and for the payment of employees.

Food supplies.—In regard to the supply of food in the early days of the camp, Dr. Brown states: "That at the beginning the food was scanty and very poor when it reached the hospital. Meat, for instance, had to be sent up here in ambulances that were used for transporting the sick, and was then thrown on a crude table covered with dirt and often exposed to the sun, so that it soon became necessary to bury it. When we were able to cook it it was so full of grit that it took a strong heart to be able to masticate it.

"Milk came spasmodically and usually soured late in the afternoon, leaving us to depend upon canned milk for our night supply.

"For three days there was very little food of any kind except milk, which fortunately supplied the patients, and the help could get along under the circumstances. One day we would be out of meat, the next day out of bread, and so on; when we had a supply of one thing we were all out of the other. Here, too, was the lack of transportation plainly visible. From about the 18th of August the supplies came in in large quantities and very good in quality, so that latterly we actually had more provisions than could be used. And the canned goods and other articles not perishable accumulated so that we have quite a reserve stock on hand."

Sanitary work done on grounds about general hospital.—The following is a report of the sanitary work done on the grounds about the general hospital by the Second United States Volunteer Engineers, under the general supervision of Maj. Franklin A. Meacham, surgeon Second United States Volunteer Engineers, by order of Col. Willard Young, commanding Second United States Volunteer Engineers:

"On the first visit of the Secretary of War to this camp, August 24, he found the grounds about the general hospital in a deplorably unsanitary condition. Desiring to remedy this, he, together with Maj. Gen. Joseph Wheeler, called Col. Willard Young in consultation as to the best means of accomplishing this much-needed reform. As a result of this conference the Second United States Volunteer Engineers were charged with this, doing the work.

"August 24 orders were received by me from Col. Willard Young to proceed to the general hospital and take entire charge of the sanitary work about the grounds. This was in no way to interfere with the internal management of the hospital. All work engaged in by the several details of the regiment, except those laying the water pipes and the laying out of the infantry camps, was to be suspended, and all efforts to be turned toward the rapid accomplishment of this much-needed sanitation.

"Accordingly, August 25, at 7.30 a. m., I proceeded to the general hospital with 6 officers and 150 engineers and inaugurated the work. Later in the day the Secretary of War and Maj. Gen. Joseph Wheeler visited the grounds, and reiterated the instructions given me by Col. Willard Young: Use every possible effort to remedy at once the existing insanitary condition; to continue in charge and see that the grounds were kept in order, and that all necessary help would be furnished; to use freely their names in ordering any necessary supplies or procuring needed assistance. In accordance with these instructions, Lieut. Oscar S. Durfee, Second United States Volunteer Engineers, by order of Colonel Young, reported to me with 67 quartermaster laborers and 2 foremen, with 10 wagons and 7 dump carts on the following morning. These laborers took the place of the engineers as soon as their labors had been completed, and have since carried on the general work under the immediate supervision of Lieutenant Durfee, assisted by 4 non-commissioned officers of engineers. This work was greatly facilitated by large details of men and wagons sent from the cavalry regiments.

"In looking over the ground I found that there was the greatest need for commodious and comfortable latrines, placed at a safe and respectable distance, and the immediate stoppage of the soiling of the surface of the ground, in many instances through the carelessness or ignorance of the attendants employed in the wards. The latrines already in use were small and placed only a few feet from the wards. Those at the northeast corner of the main hospital were placed on swampy ground and could not be dug over 2 or 3 feet deep. Similar latrines were placed at the northeast and northwest corners of the main hospital on high and dry ground. These latter were on the main approach to the hospital. Others were located on the east and west sides of that part known as the annex. These latrines were foul smelling and the men using them plainly exposed to public view. They were so small that they could not accommodate the great number of men, and in consequence the surface of the ground around about them was often befouled. Two men only had been employed in digging, filling, and disinfecting these latrines in a desultory way. From the constant necessity of moving the latrines the ground around about was rapidly becoming honeycombed and a great source of infection. Screens were at once built around these latrines, which were used while other and more comfortable ones could be constructed. The place chosen for these new latrines was to the north of the main hospital, where the necessary depth of 8 to 10 feet could be had. To reach these it was necessary to build a plank walk, with railings, 270 feet long across the swamp. Here latrines were built as follows:

"A latrine consisting of two sinks, each 100 feet long, 8 feet deep, and 4 feet wide, dug parallel to and 6 feet from each other and covered by light frame buildings 7 feet in front, 5 feet high in rear, facing each other. A board fence 3 feet high between the two sinks gave the necessary privacy and economized lumber, the front of the buildings not being boarded up. The seats were the ordinary holes, 10 inches in diameter and 2½ feet center to center. At each end a lateral trough 6 inches wide and 4½ feet long, leading into the sink, served as a urinal.

"The latrine was economical and served its purpose admirably. A hinged door on the bottom rear gave easy entrance for disinfectants. The building was strong enough to permit being moved to new sinks as often as necessary. Suitable openings were left for emptying bedpans, etc.

"Other and similar latrines were built for the annex, the officers, and nurses. Six laborers were assigned to the care of these latrines, keeping the seats and

floors clean, and attending to the disinfection and the filling in of the sinks. All sinks were disinfected every hour during the day in the following manner: A liberal amount of lime was thrown over the fecal matter and over this fresh dry earth. On top of the dry earth was thrown a layer of copperas. In this way the fecal accumulation of the next hour fell in disinfectants and was in turn covered with lime and earth. There was scarcely any odor when properly attended to. This method took the place of the individual disinfection and covering of stools with dry earth as recommended by most sanitarians as the best, but in this special case impracticable owing to the sick and weakened condition of the men.

"The ward attendants, in many instances private soldiers with no knowledge of the modes of conveying infection, were in the habit of emptying bedpans and vessels on the surface of the ground about the latrines, in the roads, gutters, and swampy pools which surrounded the hospital. The garbage cans and barrels placed between the wards as receptacles for table refuse were even used as dumping places for the contents of bedpans and commodes. It was the custom also of these same attendants to wash these vessels in the swampy pools. These methods of conveying infection not only prevailed openly in daytime, but under cover of night were even more pronounced. To put a stop to these nuisances, on August 29 I applied in person to Maj. Gen. S. B. M. Young for a guard. One officer and 30 men reported to the hospital for guard duty and ten posts were stationed about the wards. In this way these insanitary offenses were stopped and the ward attendants made to empty the stools properly into the sinks.

"In order that there should be some place for cleansing the soiled bedpans, etc., a water plug was placed on line with the latrines and a hole 6 feet square and 10 feet deep was dug. This was covered after the manner of a "hopper," in which the vessels, etc., could be cleansed and the hole kept thoroughly disinfected.

"Garbage from the kitchen and wards, which was heretofore hauled to the beach in front of the First Division infantry camp, was now hauled to large refuse pits, properly disinfected, and buried. So great was the accumulation of refuse that it was some days before any impression could be made on its removal. This refuse as far as possible was separated into the destructible and burned, such as clothing brought from Cuba, such ordnance stores as haversacks, belts, etc., boxes, etc. The indestructible was buried. All materials left after burning were raked together and buried.

"Soiled and infected bed linen, blankets, mattresses, and pillows were thrown out and had been piled up under each ward. They were wet and moldy, foul smelling, most obnoxious to the sight, and a source of infection to the occupants of the wards above. It was now determined to haul the bed linen to the laundry and burn the infected bedding. At that time this was the only feasible method of disposing of this linen. The completion of the laundry being delayed, this infected material accumulated there in large quantities, which would have been a great source of infection had it not been properly ordered burned by Maj. Gen. S. B. M. Young, September 10. After this date no linen was destroyed, excepting cast-off clothing, as the laundry was now able to take care of it. All linen and blankets that had been laundered were delivered to the hospital under our detail.

"On account of the great amount of dust, on August 29 I obtained from Maj. Gen. S. B. M. Young an order for sprinkling carts. From this time on the entire grounds and wards about the hospital were free from dust.

"Hitching posts were constructed at a distance from the hospital, and orders issued that all horses and conveyances should be kept out of the avenues about the hospital headquarters and away from the kitchens, where they were wont to congregate.

"In addition to the building of all latrines, Capt. Barton F. Dickson, with 2 officers and a detail of 12 noncommissioned officers and 48 men, constructed all carpenter work. The kitchen of general hospital was properly floored after 12 inches of ground, indescribably foul by soakage, was removed. Platforms and troughs were built around all water plugs and filled around with sand. Three hundred feet of troughs were made for carrying away waste water. Large boxes were placed between wards as receptacles for refuse and soiled linen. Captain Dickson and detail were at work from August 25 to September 4.

"Capt. A. W. Cooke, with detail of 3 noncommissioned officers and 35 men, improved the roads leading to the hospital as well as those around about the hospital. Many swampy places were filled in with sand and box drains put in where necessary. The hospital tent wards were trenched. The soaked earth around kitchens was removed, filled in with sand, and drained. Captain Cooke and his detail were at this work from August 25 to September 5.

"Sufficient force for the policing and the sanitary work of the detention hospital and camp had not been provided. Refuse pits were placed too near the

hospital, and the soiled and infected linen was thrown upon the ground between the wards, nor was there any surface or hydrant drainage. From September 8 to September 25 Lieut. C. F. Jackson, Second United States Volunteer Engineers, was placed in charge of this work under my supervision. New latrines were built and pits for garbage from kitchen and wards were dug at a safe distance from hospital. More garbage cans, and receptacles for soiled linen and paper were procured. Grounds about hospital were thoroughly policed, and lime sprinkled freely where refuse had been thrown. The latrines were now disinfected on the same plan as at the general hospital. All garbage was hauled to refuse pits and buried. The destructible refuse was burned and the indestructible buried. Drains were constructed for surface and hydrant water.

"The general policing of the various vacated camps was done by Lieut. Arthur T. Ballantine and quartermaster laborers from September 19 to 23.

"In a few instances only were any of the camps left in a clean and sanitary condition. This was notably so in the case of the artillery in the detention camp and the First and Twenty-fourth Infantry. The camps vacated by the regular troops were in an average sanitary condition only, while the camps left by the volunteer regiments were in a deplorable state. Here were to be found numerous infractions of the elementary principles of sanitary science, the natural causes of infectious diseases. There was evidently no attempt at policing. In many cases it was found the unoccupied tents were often used as latrines. Paper, boxes, ordnance stores, etc., were scattered in all directions. Some tents were trenched, others not. Wagonload upon wagonload of commissary stores and quartermaster stores were left upon the ground.

"In some camps the sinks were not dug over 2 feet deep; in other camps they were using buildings which rested on the surface of the ground and no holes dug at all. No effort was made to take care of their sinks in any manner whatsoever. Refuse and garbage were scattered over the surface of the ground or left uncovered in the garbage pits. The camps of the Seventy-first New York and Eighth Ohio, Thirty-third and Thirty-fourth Michigan, First District of Columbia, Eighth Massachusetts, and the Rough Riders were left in the above deplorable insanitary condition."

Protection against fire.—Large barrels and galvanized iron tanks, filled with water, were placed at the front, rear, and sides of each ward, into which a quantity of salt was thrown, for the double purpose of keeping irresponsible persons from using the water for other purposes and increasing its efficiency in extinguishing fire. Inside each ward were placed three brass fire extinguishers, which were easily handled and could be carried by a child and operated by simply inverting the cylinder. Each will throw a stream of water one-fourth of an inch in diameter 30 feet and will continue in operation for ten minutes. These, together with the surveillance of outside sentinels and the constant watchfulness of those on duty in the wards, both day and night, it is believed afford positive assurance that there is no danger of spread of fire. The wooden buildings for the sick are provided with a door at each end and two on each side for exit in case of fire. Axes are kept under guard in a central location so that they may be had at any time in case they are needed. The reason they are not distributed among the wards is that it is feared that patients in their delirium might obtain possession of them if they knew of their whereabouts, as we have found that many of the delirious patients are anxious to get hold of weapons.

This protection is not only for the wards, but for the storehouses as well, where the Government property is kept. In a word, every precaution has been taken to insure our safety against fire.

Policing of the camps.—With regard to the protection afforded by the provost-marshal in policing the camps, etc., Dr. Brown submitted the following statement:

"Capt. George F. Chase, Troop D, Third Cavalry, was appointed provost-marshal, and his guard was so effective that it was impossible to get in or out of detention hospital without a pass from the proper authorities. When visitors and others came to the general hospital in great numbers, Captain Chase gave us great relief by holding up people who had no other business about the hospital than sight-seeing. It was not only in the protection afforded the hospital that Captain Chase assisted us, but I might say in every way. His duties were constantly enlarged, until, if anything was wanted from about the station, and wanted badly and quickly, all that was necessary to do was to notify Captain Chase, and it was forthcoming at once. This is mentioned because it was so unusual at times to get prompt attention, and to receive supplies badly needed, from any of the other officers on duty about the railroad yards.

"Part of the work of the provost-marshal was looking after the sanitary conditions of the whole camp, which was done in a very satisfactory manner. In this connection Captain Chase says:

"It being part of my duty to look after the sanitary conditions and to see that the policing was properly done, I am warranted in saying that, with the exception of the Eighth Ohio, the Seventy-first New York, and the camp of the Rough Riders, it was perfectly done. The Seventy-first New York, the Eighth Ohio, and the First Volunteer Cavalry left Camp Wikoff and their camp sites in a filthy condition. It was necessary to employ a large gang of men for several days to get these camps cleaned up and in sanitary condition."

Sanitary condition of troops at Camp Wikoff.—In regard to the sanitary condition of the troops at Camp Wikoff, Maj. H. S. Kilbourne, under date of September 17, reported as follows:

"The Fifth Army Corps arrived at the camp by transports from Santiago de Cuba during the latter days of the month of August and the first two weeks of September, 1898, having about 1,500 men on sick report, in addition to those transferred from the general hospitals at Siboney—in all about 2,000 sick, with increasing numbers.

"For the reception of the sick a detention hospital and a general field hospital were established at this station, with a capacity sufficient to accommodate the more serious cases of illness and abundant supplies.

"In order to provide for the less serious cases of illness among the troops, three additional field hospitals were installed by the division surgeon of the Fifth Army Corps, with a capacity of 180 beds each, new tents being obtained from the depot quartermaster at Montauk for this purpose, and furniture and medical supplies from the purveying depot in New York City.

"From the supplies of this hospital necessary medicines were issued to regimental surgeons as they were required.

"I assumed the duties of chief surgeon of the Fifth Army Corps on September 6, 1898, since which date there has been no lack of supplies and accommodations for the sick of the command.

"Owing to the large number of sick to be provided for, and to relieve the congestion of the hospitals, the transfer of sick soldiers by rail and transports to other points and the furloughing of convalescents has been regular and continuous since the above-mentioned date.

"The movement of the troops to other stations has been in progress for the past ten days. At the present time a majority of the troops are arrived or en route to other stations, and there are remaining in the hospitals a comparatively small number of the sick.

"The site of the camp is, in my opinion, well chosen. The locality is accessible by both land and water transportation. Proximity to the sea, an open, rolling, and elevated country, and an abundant supply of pure water are afforded here.

"The conditions to be dealt with here are unprecedented. The victorious army returning to the United States from Cuba was greatly debilitated by the exposure and fatigues of the campaign. A majority of both officers and men are enfeebled by the incessant labors of an active campaign in a tropical climate. And while now, after the fact, it is not difficult to perceive how the contingencies of war might have been better appreciated and met, I am able to say with confidence that all resources available in this place for the mitigation of the suffering of the troops have been continuously employed.

"Timely aid has been afforded here by various organizations and individuals, the Red Cross Society, the Massachusetts Aid Society, the Christian Brothers, and especially the service of the special diet kitchens, organized and conducted by prominent women. All these have been found valuable adjuncts to the Army of a nation whose custom it is to declare war and afterwards prepare for war."

Maj. H. S. T. Harris, on the same date, also reported on the sanitary condition of the camp as follows:

"I arrived at Montauk Point August 17, with the First United States Cavalry and a battery of the Fourth Artillery, in the steamship *Matteawan*. There were some 70 men on sick report in the ship, and the whole command was anæmic and wasted from malarial infection in Cuba to a greater or less degree.

"We found well-equipped hospitals already established for the reception of our more serious cases of illness (some 20 in number). The command found tentage already pitched and floored for its reception in the detention camp, so that there was no work devolving upon them save the preparation of their own meals.

"Upon my release from detention camp, I found that the camp for the division was pitched before the arrival of the troops on a most excellent site as regards

soil, drainage, situation, etc., the men being again spared the labor of making their own camp. The utmost care was used in preserving the cleanliness of the company kitchens, company streets, and the camp site in general, a police officer having been appointed in each brigade with full powers to report upon and correct any laxity in individual troops or regiments. Both quicklime and dry earth were used in the men's and officers' latrines. The water supply has been excellent, in my opinion, coming from deep wells lying below one or two impermeable strata of clay.

"Bed sacks were provided by the quartermaster's department and filled with straw. Many of the men constructed bunks for themselves out of lumber furnished by the engineers. New clothing was drawn in the usual manner to replace the worn articles brought from Cuba and Tampa, and free issues have been made to sick men leaving on furlough or going to hospitals.

"The regular ration has been added to by extra issues of ice, milk, eggs, oatmeal, canned soups, canned goods, and many other articles. These things, aided by many donations from various societies and individuals, have made such a profusion of diet, that in many instances the troops have refused to draw all their fresh meat and bread.

"Montauk Point is an ideal site for what has been really a malarial convalescent camp, swept as it is by refreshing ocean breezes, and presenting no exuberant vegetation to act as a means of fresh infection.

"The greater proportion of the sick at this date have either gone home on furlough, been sent to hospitals, or returned to duty. The remainder of the command has not fully recovered its former health and vigor, but is making as rapid progress as can be expected in view of the virulence of the malarial infection to which it has been exposed.

"Some cases of typhoid fever have been brought here from Southern camps, some few from Cuba. All suspicious cases which have come under my notice have been sent to general hospital, so that I am unable to state definitely how many, if any, cases have originated in this camp. Certainly, every practicable precaution in the matter has been taken.

"The medical care of the sick in this camp has been most careful. Both medical and line officers have taken the greatest interest in the matter, and delicacies have been furnished not to be surpassed in any hospitals in the country. Neither labor nor expense has been spared. So much has been furnished in the way of diet and help in its preparation (diet kitchens), that of the large sums available for this purpose only a small proportion has so far been used."

The following "Brief memorandum of the impressions produced as a result of my observations since I reported at Camp Wikoff, August 20," is furnished me by Maj. J. C. Powell:

"1. *As to the condition of troops on their arrival.*—From observing the officers and men on landing from transports and very soon afterwards in camp, their general appearance was that of men who had just gone through an extraordinary tax on their physical powers. Men who were not actually on sick report were wan, sallow, and greatly reduced, and all the conditions seemed present for the quick development of acute paroxysms of disease under but mild exciting causes.

"2. *Effect of arrival at Montauk Point.*—There was no instant improvement in their condition as result of the change from the hot and exhausting equatorial zone to the mild and health-giving atmosphere of Montauk Point that prevails during the summer season. What change has taken place has been gradual, for to the conditions of disease brought along with them was added, as has just been suggested, that of thorough exhaustion. With the seasonal changes taking place now, many cases have been seen where disease had been lurking in ambush, so to speak, but with the advance of autumnal chill and damp it has been unmasked and developed into acute paroxysms.

"3. *Capability for the performance of duty.*—It would be impossible to express an accurate opinion as to the amount of disability, but it was unquestionably very large, and even among those who were not on the official sick report I do not believe over half were equal to the proper performance of all their duties. Aside from the effects of a campaign, which it is agreed was exceptional in its demands upon the physical powers of officers and men engaged, the disabling character of the diseases from which they suffered—malarial and typhoid—is to be borne in mind on account of their prolonged effect, as it requires in a majority of such cases many months before the subject is able to shake off entirely the profound toxæmia that results.

"4. *Care of sick and well.*—Nothing more could have been done under the circumstances. No more eligible site, in my judgment, could have been selected as

a camp for the command than Montauk Point, limiting this remark, however, to the summer season. The rapidity with which hospital accommodations were prepared for the sick and properly equipped camping outfits set in place for the apparently well, in my judgment, reflects great credit upon those engaged in that work, when it is remembered that such a mass of troops was rushed in with scarcely a moment's warning.

"5. *The camp itself.*—For a summer sojourn of a couple or more months, this is in my opinion an ideal camp. In fall or winter I believe it to be the reverse. Climatic and weather conditions then exist favorable to the development of pneumonia, bronchitis, and allied diseases, and especially would this be the case with those who were in an enfeebled state in consequence of physical exhaustion or an impoverished state of the blood. The water I believe to be good, notwithstanding the insane crusade against it by the ignorant. For myself, I have taken it without boiling from all parts of the Point without the least inconvenience. Reference to some new features in military-hospital management may not be out of place. I wish to allude to the value of trained female nurses, which has been a revelation to me. The diet kitchens, too, where provisions for the sick, and especially for the very ill on such a large scale becomes necessary, are invaluable accessories."

Facilities afforded relatives and friends seeking information.—The executive officer of the general hospital, whenever it was possible to ascertain the information, telegraphed to the friends or relatives the condition of those they were interested in. These, in case of a fatal termination, were at once notified of the death and information was solicited as to the disposition of the body. Those visiting the hospital to see their relatives and friends and who desired to remain overnight were comfortably tented, and provided with cots, mattresses, and blankets and permitted to eat Government rations. They were aided in every way possible to locate their friends, and if located, every facility was offered within our reach to afford them the means of visiting those sought for.

Hysterical women and those seeking notoriety were not encouraged to remain here. Notwithstanding this, they continually hung on our flanks until quite recently, when, as the excitement began to wane, the place became uninteresting to this class of people, and they went to pastures new.

Records and clerical work.—When the first troops arrived there was only one book in which to keep records; that being a blank book brought to the camp by the medical officer serving with the Sixth Cavalry. This served as a record of the troops coming with that organization, but could not be used for records of the patients soon arriving in great numbers. Consequently, there were no books or papers by which a record could be kept of anything except of admissions and deaths; and not until August 21 did we receive stationery that would permit us to undertake to keep a proper record of the patients here.

A report of the sick and wounded could not be furnished on account of the rapid change of the patients; for instance, patients arriving one day would be furloughed or transferred to another hospital the next day.

For a time after the stationery arrived it was impossible to work the clerks at night owing to the fact that there was no light. We were able only to obtain now and then a candle, which was absolutely necessary to have in the wards for the patients; the records, like the rest of the hospital, becoming better as time went by. Finally, when we had plenty of light and stationery, the clerks worked every night, sometimes all night, and now the records are as near perfect as one could wish.

The diet kitchen.—The following is a statement by Mrs. M. H. Willard:

"Through the cooperation of Colonel Forwood it became possible to establish a diet kitchen for the sick and convalescent soldiers under the care of the general hospital at Camp Wikoff. Previous to August 27, 1898, all of the patients had been fed from the mess kitchen, a small wooden building presided over by an army cook, who had neither the time nor knowledge to prepare food necessary for the diet of malarial and typhoid patients. The army rations or hospital stores of rice, oatmeal, and milk formed the diet for every meal, until many of the patients were unable to digest their food. The physicians and nurses could not secure the simply prepared chicken, beef, and mutton broths, so necessary for the proper nourishment of the sick. As soon as the men were convalescent they were sent to the mess kitchen, where they could obtain only the army rations of pork, beans, bacon, and (at times) fresh beef. It is conceded by all physicians that the diet of the fever convalescent is the most important factor in the patient's recovery.

"It was the great need for carefully prepared food which prompted the Red Cross Society and the Massachusetts Volunteer Aid Association, represented by William H. Prescott, M. D., to establish between the general hospital and the

annex a diet kitchen, to be conducted on scientific principles, and to provide all liquid, light, and special diets. Tents were secured August 23, 1898, and every arrangement made as speedily as possible to feed the 1,500 patients in the hospital. Every assistance was given by the authorities, and valuable aid was rendered by the volunteer engineer corps in putting up the framework, in perfecting the sanitary arrangements, and in bringing running water into the tents. All expenses of a large supply of kitchen utensils, cereals, and foods were paid by the Massachusetts Volunteer Aid Association, who also secured the cooks. The Red Cross Society placed Miss E. F. Cox in charge, a dietician and graduate of a Boston school of dietetics, who thoroughly understood cookery for the sick. On August 27, 1898, four days after the first plank was laid, supper was served to the patients. Since that date about 4,000 patients have been fed. Beef tea, mutton and chicken broths, custards, rennet, steaks, chops, scraped-beef sandwiches, broiled chickens, birds, and other delicacies have been served.

"The officials in charge of the hospital speedily recognized the value of the work, and a few days following the opening of the kitchen it was turned over to the Government, accompanying orders from Maj. C. L. Heizmann that all supplies needed outside of the general-hospital stores could be purchased independent of the commissary department. The kitchen was then enabled to meet almost every demand upon it for any delicacy required by the patients. The surgeons in charge of the division hospital requested that the diet kitchens should be established before the opening of their wards. This was done at once; ranges and other necessary articles being brought from New London by the tug *Alert*, the property of the Massachusetts Volunteer Aid Association. The diet kitchen of the First Division hospital opened September 5, 1898, with Miss E. D. Ballinger in charge, and was ready to receive the first patients brought in. It continued until the hospital was disbanded, September 19, 1898, during which time 340 patients were fed for seven hundred and sixty-six days, making the total number of meals served 2,198. The diet kitchen of the Second Division hospital opened September 3, 1898, with Mrs. A. E. Aldred, a graduate of the New York Cooking School, in charge, and the same careful system was observed as at the general hospital. Four hundred and forty patients were received; total number of days, six hundred and sixty-nine, and 2,007 meals were served. Owing to the late completion of the regular mess at this division the patients also received solid diet. The Third or Cavalry Division hospital was ready to open September 7, 1898, and the diet kitchen was completed in time to care for every sick man brought in. This is still open and the statistics not yet made up. At the detention hospital there was opened on August 29, 1898, a diet kitchen in charge of Miss Mary Fennessey, who, with only an oil stove and a few kitchen utensils, did excellent work. Through the system adopted by the Red Cross and the Volunteer Aid Association, and later by the Government, we were able to render valuable aid in securing ranges, kitchen utensils, and a prompt delivery of supplies. The kitchen closed September 19, 1898, having distributed meals to about 1,000 patients. The kitchen at the general hospital will remain in active operation as long as there is a patient requiring its services."

Upon my arrival, September 10, I found the various hospitals in excellent condition. In fact, I have never seen field hospitals better arranged or in more perfect order. The wards were clean, the attendance was efficient both by doctors and nurses, the food was well cooked and served, the discipline was good, supplies of all kinds ample, and the patients as well cared for as they could have been in the best-managed city hospital.

As my specific duty was to expedite the transportation of the sick to city hospitals, my attention was first turned to the means at hand for accomplishing the work. I found a train of 22 ambulances under the command of Lieutenant Sile, assisted by Dr. Moore; this train was camped partly near the dock, and partly at the division hospitals of the Fifth Army Corps, so as to be readily available for service at any part of the field. At the dock was stationed Dr. F. G. Jones, to take charge of the sick and conduct their transfer to hospital ships, and at the hospital a medical officer was assigned to supervise the transfer from wards to ambulances.

Prior to leaving Washington, I telegraphed an order for the assembling of a board of three medical officers to examine carefully all patients about to be transferred, and to determine who were in proper condition to make the journey; no man should go who would be likely to be injured in the transfer, or who was well enough to return to his regiment. The function of the board was subsequently extended to applicants for furlough, and their action in both cases was final. The board at the general hospital was composed of Lieutenant-Colonel Senn, Major Nancrede, and Dr. Delafield, of New York, all men distinguished in their

profession. Similar boards were arranged in all the other hospitals at the camp. This action was a necessity, since the importunity of relatives and friends, and the desire of the patients to be sent home was so great as to embarrass the ward physicians, warp their judgment and thus lead to the transfer of men who subsequently fell by the way, or possibly would die from the exertion and excitement of removal.

The hospital ship *Shinnecock* and the yacht *Red Cross* were available for water transportation, and some railway cars, equipped at the private expense of Mr. McMillan and Mrs. Whitelaw Reid, furnished land transportation. On the day of transfer early word was sent to the several hospitals to prepare the patients for removal at a fixed hour, usually 1 o'clock p. m. Clothing was issued, food given, and transfer slips prepared, the number to go having been previously reported. Guards were placed at the leading stations to keep away sightseers. As fast as ambulances were loaded they were driven to the dock, where Dr. Jones, assisted by a large detail of attendants, took charge of the patients and placed them on the ship.

Telegraphic notice of departure was sent to the officer designated to receive them at the point of debarkation. The points of shipment were New York, Philadelphia, Boston, Providence, New London, and other cities along the sound. The hospital ship was fitted with every convenience, well supplied with doctors, nurses, medicines, food, etc. Shipments were made every other day, and during my tour of duty over 1,200 sick and convalescents were handled. The first and second division hospitals were soon emptied, and I ordered them closed; so, also, the annex and branch sections of the general hospital; this for the purpose of convenience of administration, and to afford better service for the remaining sick. The medical board referred to decided also on the condition of removal of the patients from one ward to another.

As there was much apprehension regarding suffering of the sick from storms and cold weather, I ordered the construction of wooden pavilion wards, each to hold 40 patients, placing them alternately between tent wards, one tent ward being removed to give place to a pavilion. Their plan of construction was superintended by Dr. Delaheld, of New York. They were furnished with stoves, water was piped into them, ventilation secured, and the comfort and convenience of the sick when in them were thus assured.

The vast amount of public property made surplus by the departure of the sick and the concentrating of administration, was collected, packed in containers for shipment, regular inventory taken, and the whole placed in store tents in the general hospital, where it could be properly guarded, until finally disposed of by order of the surgeon-general.

The surplus personnel was gradually utilized at other places, doctors and nurses being sent to Cuba, Porto Rico, and Southern hospitals, by order of the surgeon-general, and on their application for retention in service, while those who desired it were granted a discharge.

Thus quickly, but in an orderly manner and without disturbance, this host of sick soldiers left the great camp almost deserted. At the time of my departure there remained about 300 very ill patients; too ill to be moved. They were receiving every comfort and had ample provision made for their care until the end should come, or they were sufficiently recovered to be returned to their homes.

REPORT OF LIEUT. COL. HENRY LIPPINCOTT, DEPUTY SURGEON-GENERAL, UNITED STATES ARMY, ON THE CONDITION OF MEDICAL AFFAIRS IN THE PHILIPPINE EXPEDITIONARY COMMANDS.

[Dated Manila, Philippine Islands, August 31, 1898.]

In my communication of the 27th ultimo, I had the honor to inform you that the health of this command was fairly good. This may still be said to obtain, but the sick list is larger than it would be were our men better situated in a sanitary way. There is a great tendency to stomachic and intestinal disorders, dysentery being common, but malarial fever is also of frequent occurrence, and many of the diseases common to the United States are also observed. These will appear on the monthly reports and are merely referred to here. The total number of deaths from disease and accidents since first fleet left San Francisco is 29, distributed as follows: Typhoid fever, 14; septicæmia, 1; paralysis, 1; broncho-pneumonia, 1; pneumonia 2; dysentery, 2; meningitis, 2; cerebro-spinal meningitis, 1; heart rheumatism, 1; heat exhaustion, 1; endocarditis, 1; appendicitis, 1; morphine poison (suicide), 1.

Regarding reports, I have to state that the surgeons have had much to contend with in rendering them. Some of them, I regret to say, have been unavoidably long in reaching your office. I can assure the Surgeon-General, however, that we have not only had incessant storms to contend with, but transportation between the transports and Cavite and the transports and Camp Dewey has been most difficult and dangerous. The bay of Manila is practically an open sea and we have had to land supplies and patients through the surf, contending with high winds and almost constant rains. Life has frequently been endangered and property has been lost or ruined. With all this the medical department has performed its duties cheerfully and efficiently. The headquarters are now here where I opened my office on the 17th instant, and trust soon to be able to have the medical officers instructed in the preparation of the various reports, etc. At San Francisco there was no time for systematic instruction, although much was done in that direction. On my arrival there I began at once to complete the organization of the medical department for these forces, steps having already been instituted in that direction by Lieutenant-Colonel Middleton and Surgeon R. H. White, United States Army.

I found that a number of men had been enlisted for the Hospital Corps, but, perceiving that many more would be required, I recommended continued enlistments, and, in addition, the transfer of the volunteer regimental hospital corps to the regular establishment, which was ordered. Many excellent men were thus secured, and I was thereby enabled to furnish a sufficient number of privates for duty in the division hospital in Camp Merritt and for attendance upon the sick in the transports. Each full regiment of volunteers has 3 hospital stewards, so that the allowance of hospital stewards of the United States Army for the corps is limited to 10. The allowance of medical officers has been about sufficient thus far, but the employment of a few more contracts will probably be necessary.

While in San Francisco I made every effort to secure ample medical and hospital supplies, and was successful to a great degree. The medical purveyor, Colonel Middleton, did everything in his power for us, and issued many articles not usually supplied for field service. Many necessary articles for the sick on the transports were furnished. Brigade supplies were put on board certain ships, and everything was done that could reasonably be done to make the voyage successful. Of course a few things ran short, but, taking all together, I can say the troops were supplied with all essentials on the way here.

On the ocean I prepared a circular for the guidance of medical officers, and several typewritten copies bearing the approval of the commanding general were issued before the attack on Manila. This circular is chiefly a compilation from existing orders, regulations, etc., and will be printed as soon as possible and a copy forwarded to your office. A knowledge of its contents aided the surgeons during the attack, and here I desire to say that the Medical Department was all that the Surgeon-General could wish, and the conditions were most trying. The ambulance company was commanded by Captain Keefer, of the Army. He had a number of excellent medical officers with him and they, one and all, together with the enlisted men of the company, did fine work during the advance on Manila.

The hospitals (two brigade, under Surgeons Crosby and Penrose) were in excellent working order, but were not moved forward, the distance from Camp Dewey to Manila being only about 4½ miles. Major Crosby, brigade surgeon, was and is chief operator for the second brigade, and Major Fitzgerald, Thirteenth Minnesota, was and is chief operator for the first brigade. These officers were assisted by Major Kemble, of the First Colorado; Asst. Surg. Paul F. Straub, United States Army; Asst. Surg. N. M. Black, First North Dakota Volunteers; Asst. Surg. J. M. Cabell, United States Army (retired), and Acting Asst. Surg. G. W. Daywalt, United States Army.

The number of killed during the attack on Manila was 4; wounded, 4 officers and 41 enlisted men. These were all brought back to camp quickly, although the means of transportation were very imperfect, viz, the two-wheeled carromata of the country carrying our litters, and by the Hospital Corps men with regulation litters. Ambulances could not have been used even if on hand, because of the nature of the ground and obstructions. I desire here to say that our department received great credit for its preparation, and for the manner in which it met the many difficulties of the day. It should be stated that every wounded man was dressed and comfortably in bed by 7 o'clock p. m. on the day of the attack. I have also to add that the wounded are all doing very well and that no amputation of any kind has been made, notwithstanding the fact that we have had severe wounds complicated with fracture of the limbs.

While the volunteer surgeons lack knowledge of reports, etc., the Surgeon-General may well be proud of their field and hospital work.

In the matter of supplies, I must say that the field supply table is not entirely satisfactory, considering the distance from our base. However, I have great reason to be thankful that it was not adhered to. Our supplies now arriving and on the way will serve for some time, especially as we doubtless will soon have some money available should emergencies require purchase. Before the battle of August 13, fearing the possible necessity for more dressings than we had on hand, I purchased some material, for which vouchers will be handed the purveyor on his arrival.

We are still using several buildings in Cavite for hospital purposes. These are all absolutely unsuitable in every way, making no pretensions to sanitary fitness, but are the best we could obtain. It will be necessary to continue their use for some time, because troops will remain in the town for a while longer. The brigade hospitals were removed from Camp Dewey to the Spanish military hospital, this city, August 17, and there combined to form a division hospital, August 20, for administration purposes. This establishment was erected by the Spaniards and used by them as a general hospital. It is quite large and in fair repair. It has room for at least 400 beds, and at this date 288 beds are occupied. Prior to placing the patients in the wards the surgeons took great pains to have the woodwork cleansed and disinfected. It is probable that some of the patients will be transferred from Cavite to this hospital.

The ice machine is being put up in Cavite under the direction of Surgeon Woodruff. It will be of the greatest value when working, which is likely to be soon. The drinking water is insufficient and limited to the rainfall.

The Spaniards have given little attention to sanitary matters, so that coming from our country to this, one is reminded of the advantages our people have in the United States.

I am getting the supplies from the ships and from other sources, but it is proper to add that unavoidable events, etc., as referred to above, have thus far made storing and segregation of property absolutely impossible. Now, however, affairs are taking shape and we will soon be in good working order. I understand we are to have a hospital ship (the *Scandia*). This will be most acceptable, for the time will surely come when such a vessel will be necessary.

I wish to mention the fact that we have used the Hunt ovens in the field hospitals and found them useful. I had a large number supplied by the Quartermaster's Department before leaving San Francisco. I desire also to refer to our supply of hospital tents received in the same city. The Quartermaster's Department did well for us, and I have every reason to be grateful to them. The inexperience of the Hospital Corps has been somewhat of an inconvenience; still, on the whole, the corps has done good work, and I have already expressed myself in regard to the ambulance company. The surgeons have taken great pains to procure suitable nourishment, ice, and other necessities for the wounded and sick as well; these have greatly contributed to the present good condition of the former, and have been equally beneficial to the latter.

About 15,000 points of vaccine virus were issued to the surgeons in Camp Merritt prior to the 29th of June. These points were nearly used before the troops embarked.

On our arrival at Honolulu I, under orders from General Merritt, examined into the propriety of establishing a hospital there for our sick. This was deemed necessary for the reason that almost all of the transports were obliged to leave one or more sick in that city. A building was selected, and recommendations for medical officers, attendants, supplies, etc., made.

The troops are all quartered in buildings now; some are well housed, others are not. It is difficult to restrain men from eating and drinking unwholesome articles, and these with the great heat have increased the sick list recently. Efforts are being made to correct errors, and I expect good results. The number of patients in hospital in Cavite to-day is 71; this I neglected to enter under the proper heading. We now have a launch and a well-equipped ambulance company, and are able to remove the sick from place to place about the harbor. I have now to refer to the beds and bedding for the sick of this command. We have been able to gather a good many formerly used by the Spaniards. These, though imperfect, in many instances have been a great help.

I have just called attention to the danger of unwholesome articles of food and drink, and expect to see the sick list decline by the enforcement of sanitary recommendations.

It is proper that I should refer to the Spanish sick. They have very many, and from what I can learn I do not think they fare much better here now than they did on arrival; but they do not consider sanitary requirements as our people do, and hence have a much larger list. Their sick are well supplied with essentials,

and I understand they are doing fairly well, although the number is very large, about 1,400 in hospitals in all.

I now inclose lists of wounded, an analysis of which shows that there were—

Killed:	
Officers	None
Enlisted men	11
Wounded:	
Officers	12
Enlisted men	104
Total	127
Died from wounds received in action:	
Officers (Captain Richter)	1
Enlisted men	7

Respectfully submitted.

GEO. M. STERNBERG,
Surgeon-General.

Hon. RUSSELL A. ALGER,
Secretary of War.



REPORT OF THE PAYMASTER-GENERAL.



ANNUAL REPORT

OF

THE PAYMASTER-GENERAL.

WAR DEPARTMENT,
PAYMASTER-GENERAL'S OFFICE,
Washington, October 25, 1898.

SIR: I have the honor to submit the following as the report of this office for the fiscal year ending June 30, 1898:

On July 1, 1897, officers of the Pay Department were charged with public funds aggregating	\$598, 883. 29
During fiscal year 1898 these officers received:	
From the United States Treasury.....	22, 117, 948. 49
From soldiers' deposits.....	613, 513. 51
From army paymasters' collections	169, 624. 18
Total balances and receipts.....	<u>23, 499, 969. 47</u>
Accounted for as follows:	
Expended on account of pay of the Army	14, 632, 569. 64
Expended on account of pay of the Army (United States Volunteers) ..	1, 519, 150. 64
Expended on account of pay of the Army (national defense).....	5, 000. 00
Expended on account of mileage to officers.....	103, 201. 80
Expended on account of mileage to officers (national defense)	37, 021. 94
Expended on account of pay of Military Academy.....	300, 321. 99
Expended on account of volunteers (Treasury certificates).....	437, 341. 28
Surplus funds deposited to credit of United States Treasurer	1, 205, 366. 42
Army paymasters' collections deposited to credit of United States Treasurer.....	169, 624. 18
Balances charged officers June 30, 1898.....	<u>5, 090, 371. 58</u>
Total	<u>23, 499, 969. 47</u>

A comparison of the expenditures of the last fiscal year with those of the preceding year shows a net increase of \$2,326,804.11. This increase is accounted for by the fact that by act of March 8, 1898, two additional regiments were added to the strength of the Army. Again, under act of April 22, 1898, the Regular Army was, by order of the President, recruited to its maximum strength, making about 61,000 men.

Under act of April 22, 1898, the President, on April 23, 1898, called for the enlistment of 125,000 volunteers, following the same on May 25, 1898, with an additional call for 75,000 volunteers, 3 regiments of specials, 10 regiments of immunes, 3 regiments of engineers, and a signal corps, thus providing for an army of over 280,000 regulars and volunteers.

To meet the payment of this extraordinary force estimates were prepared and submitted to Congress and liberal appropriations were made for payment.

Collections in favor of other bureaus of the War Department.

Collections for credit of appropriation for "Pay, etc., of the Army"....	\$109, 115. 13
Collected and turned into the Treasury to credit of:	
Quartermaster's Department	56, 076. 58
Subsistence Department *	185. 01
Ordnance Department	2, 276. 66
Medical Department	3. 53
Mileage to officers	1, 243. 64
Miscellaneous receipts	723. 63
Total collections	169, 624. 18

SOLDIERS' DEPOSITS.

Recapitulation of soldiers' deposits.

Fiscal year.	Number of deposits.	Amount deposited.	Fiscal year.	Number of deposits.	Amount deposited.
1873		\$209, 850. 38	1886	7, 261	\$469, 031. 55
1874		346, 609. 56	1887	6, 889	436, 574. 98
1875		325, 255. 80	1888	7, 409	386, 944. 10
1876		435, 912. 68	1889	7, 892	383, 798. 34
1877	5, 524	328, 585. 05	1890	7, 634	395, 128. 82
1878	5, 524	346, 243. 94	1891	6, 790	403, 473. 15
1879	6, 807	470, 770. 38	1892	5, 570	334, 464. 70
1880	6, 635	477, 174. 44	1893	5, 870	282, 248. 04
1881	8, 942	524, 112. 72	1894	5, 914	361, 830. 76
1882	6, 890	448, 561. 83	1895	6, 284	318, 270. 73
1883	7, 902	407, 544. 68	1896	8, 778	420, 338. 87
1884	7, 114	389, 267. 55	1897	17, 878	535, 392. 64
1885	7, 033	427, 617. 96	1898	21, 856	613, 513. 51

From the above table it is shown that in the past fiscal year there has been a gradual increase in both the number and amount of the deposits. This fact evidences a growing interest in the provision made by the Government to assist the enlisted men in saving their earnings, and reflects much credit upon the class of men now in the Army.

The privilege of depositing applies to the volunteer force.

MILEAGE.

Mileage disbursements for fiscal year ending June 30, 1898.

	Mileage.		
	1898.	January 1, 1899.	Total.
Change of station	\$32, 180. 92	\$12, 783. 31	\$44, 964. 23
Inspection of the Army:			
By the general commanding the Army accompanied by his aides, and the generals commanding the several military departments accompanied by officers of their staffs, as provided by paragraph 193, Army Regulations	2, 694. 00	203. 32	2, 897. 32
By officers of the Adjutant-General's Department	85. 76		85. 76
By officers of the Inspector-General's Department	2, 418. 24	111. 04	2, 529. 28
By officers of the Quartermaster-General's Department	1, 585. 48	182. 72	1, 768. 20
By officers of the Commissary-General's Department	201. 36	2. 72	204. 08
By officers of the Medical Department	342. 44	67. 36	409. 80
By officers of the Ordnance Department	2, 469. 92	456. 16	2, 926. 08
By officers of the Signal Corps	386. 38	18. 24	404. 62
By officers of the line on ordnance duty	128. 28	85. 28	213. 56
Inspection and instruction of the National Guard	2, 568. 68		2, 568. 68
Travel in Europe and other foreign countries	4, 679. 30	8. 64	4, 687. 94
Boards of examination to examine officers for promotion	5, 544. 84	1, 985. 88	7, 530. 72

* Collections on account of Subsistence Department were further made for credit sales to enlisted men and at once turned over to the commissary at the respective stations. The amount thus collected is not included in the above statement.

Mileage disbursements for fiscal year ending June 30, 1898—Continued.

	Mileage.		
	1898.	January 1, 1899.	Total.
Retiring boards and officers retired and ordered home.....	\$1,931.92	\$327.88	\$2,259.80
Recruiting duty.....	2,048.42	884.40	2,432.82
Travel of general officers and their aides, other than for inspection.....	896.12	201.40	1,097.52
Courts-martial, to and from.....	7,804.68	112.72	7,917.40
Payment of troops.....	839.52	165.56	505.08
Officers of the line ordered to express offices to obtain money for payment of troops.....	8.24	12.08	20.32
Medical boards.....	8.88	.....	8.88
Boards of survey.....	144.72	.....	144.72
Treasurer and professors Military Academy (Military Academy duty).....	86.40	.....	86.40
Instructions of Secretary of War (confidential duty).....	3,021.64	90.32	3,111.96
Topographical surveys for progressive military map.....	815.84	2.52	817.86
Target practice and inspection of target ranges.....	3,052.12	.....	3,052.12
Board on location and distribution of artillery forces.....	1,896.72	.....	1,896.72
Battery competitions—provisions of G. O. 41, A. G. O., of 1896.....	228.18	.....	228.18
Relief of miners in Alaska, purchasing and distributing supplies, etc.....	831.92	52.00	883.92
Exploring duty in Alaska.....	306.12	.....	306.12
Investigating outbreaks at Indian agencies.....	44.84	49.12	93.96
Travel of attending surgeons.....	218.04	10.88	228.92
Summer encampments.....	2.72	.....	2.72
Attending military and athletic tournament.....	37.12	.....	37.12
Inspection of public buildings (line officer).....	16.32	.....	16.32
Returning from conducting insane men to hospital.....	66.84	.....	66.84
	79,087.42	17,313.55	96,400.97
Disbursements, mileage, national defense.....	.....	.....	37,021.94
Disbursements, mileage, 1897 appropriation.....	.....	.....	6,796.23
Total.....	.....	.....	140,218.14

The question of mileage has been quite satisfactorily and equitably settled by the allowance of 7 cents per mile for transportation, and much labor and expense saved by this fixed allowance. There are, however, two recommendations that I would suggest:

(1) Under the present law it is almost impossible for paymasters to ascertain the cost of fare paid by the general public over bond-aided and land-grant railroads, and it is suggested that a uniform rate of 3 cents per mile be adopted as the amount to be deducted by the paymaster for travel over any of the aided roads involved or when transportation has been furnished in kind by the Quartermaster's Department.

(2) Under the law the Pay Department is directed to make the payments for mileage for travel performed. The Army Regulations, paragraph 1470, provides that the Paymaster-General shall prepare (under direction of the Secretary of War) lists of distances, and in accordance therewith mileage will be computed, no matter by what route the travel may have been performed, etc.

In settling the mileage accounts of paymasters by the accounting officer of the Treasury, differences often occur in the matter of distances, occasioned by the Auditor computing the distance over different routes than those used in making up the tables by the Pay Department. I would recommend that as the tables of distances prepared by the Pay Department are the tables by which payments are made, they should also be adopted as the authority for the settling of the accounts, and be so recognized by law.

SYSTEM OF PAYMENT.

During the past year all payments to the Army have been made monthly. Previous to the declaration of war these payments were made by check or in currency by express. After the organization of the volunteer force it was not found practicable to pay by the above-mentioned method, consequently all of the forces in the field have been paid by the paymasters in person.

Very many complicated questions have arisen owing to the authority given to muster the several State organizations into the service in accordance with the State laws. In many instances the State organizations differed from the organization of the United States Army both in number and rank of the officers and enlisted men.

This gave rise to many questions as to the law governing in the several States, in the formation of the organizations, and the rates of pay to be allowed. In a rapidly formed army it is natural that many important facts would be overlooked, which are necessary for the information of the paymasters.

The question of authority, however, to the paymaster is of great importance as to what payments are proper and legal and will pass the scrutiny of the accounting office of the Treasury Department. Therefore careful thought and consideration had to be given to new questions confronting the disbursing officer, and when not covered by law or regulations appeal was taken to the Pay Department or to the Secretary of War, and instructions and orders thus obtained have been closely followed, and it is hoped that they will not be in conflict with any of the regulations governing the settlement of accounts in the Treasury Department.

Since the close of the fiscal year covered by this report and up to the date of its rendition, October 25, this Department has endeavored to pay promptly the troops in the field scattered over two hemispheres, and has fairly well accomplished the task.

In addition to the regular payments, the payment of mustered-out troops has imposed much additional labor, but so far all have been paid without delay.

The large number of regiments and independent commands yet to be mustered out will severely tax the energies of the entire Pay Corps, but the zeal they have shown gives assurance that however arduous the labor it will be promptly and satisfactorily performed.

ADDITIONAL PAYMASTERS.

The increase in the Army necessitated an increase in the force of the Pay Corps to enable the Department to make prompt payments; therefore, on the request of the Paymaster-General, the President had, on June 30, 1898, increased the Corps by 72 additional paymasters.

These officers and their clerks entered the service with very little or no knowledge or experience in regard to army accounts, and it appeared necessary to place them under instruction to fit them for their duties.

Accordingly a school of instruction was organized, in which each was made familiar with the necessary forms to be used in payments and the principles of making and rendering accounts. Attention was also directed to orders, regulations, etc., governing the payment of accounts. As a result, each officer entered upon his duties with a fair knowledge of the business before him.

This preparation has borne its results, as the payments to troops have been made promptly and intelligently, resulting in fewer errors than would have otherwise occurred.

EXAMINATION OF ACCOUNTS.

By section 12, act of July 31, 1894, it is required that the accounts in this office shall be transmitted to the Auditor for the War Department within twenty days after their receipt. It has often been quite difficult, in the limited time, to comply with this provision and give the accounts the attention they require.

The difficulty in forwarding these accounts within the twenty days is now greatly increased, particularly when large numbers of accounts are received at the same time, as, for instance, from the Philippine Islands or from Cuba or Porto Rico, all having the same date; and I would earnestly recommend that section 12 of the act approved July 31, 1894, be so amended, that the Secretary of the Treasury be vested with the same authority in regard to relaxing the rules and regulations in regard to the rendition of accounts by the administrative departments beyond the limit of twenty or sixty days the same as in the case of the rendition of accounts by the accounting officers.

INCREASE IN THE REGULAR FORCE OF THE PAY CORPS.

While the strength of the Regular Army has been more than doubled numerically, the number of regular paymasters has remained the same. The exigencies of the service were such that the duties devolving upon the regular Pay Corps of the Army have been very laborious and responsible. It required considerable time for the additional paymasters to qualify themselves, and after receiving their preliminary instructions they were still lacking in experience in the field, so that it was not until after July that much relief was afforded the regular force.

In making payments senior or regular paymasters were placed in charge, who, in addition to making their own payments, were required to advise and direct the payments made by the additional paymasters. Thus double duty was demanded of them. In making payments, the regular officers, as seniors, were intrusted with large sums of money, which were left under their personal care until distribution was made to the paymasters under them, which was frequently done in the camp or on the field, and at times under very unfavorable circumstances. This duty has been accomplished without loss or delay on their part.

As the corps is now organized, there are only 2 assistant paymasters-general, 3 deputy paymasters-general, and 20 majors and paymasters. The assistant and deputy paymasters-general are assigned as chief paymasters of the several military divisions. Under the new condition of affairs, additional departments are being formed at such remote points as Manila, Porto Rico, and Cuba. To these positions the senior majors have usually been assigned, and as they are stationed so far from Washington they are obliged to rely upon themselves in deciding the numerous and difficult questions that are constantly arising in making disbursements and rendering their accounts for the same. Very capable officers have been found for these responsible positions, and while other staff officers with the rank of colonel and lieutenant-colonel are filling similar positions in their several depart-

ments, the paymasters, with quite as great responsibilities, are only ranked as majors.

In view of the foregoing facts, the increased Army, and added responsibilities, I earnestly recommend that to the Regular Pay Corps of the Army there be added 3 assistant paymasters-general, 5 deputy paymasters-general, and twenty majors and paymasters; the promotions to colonel and lieutenant-colonel to be made from the officers now in the Pay Department according to seniority, and upon the mustering out of the volunteer forces and the reduction of the Regular Army to the basis prior to the act of April 26, 1898, no appointments shall be made in the Pay Department until the number of officers in each grade shall be reduced to the number authorized prior to the date of the act above mentioned.

PERSONNEL.

Maj. William Arthur retired from active service under section 1243, Revised Statutes, upon his own application, after thirty years' service, April 30, 1898. Maj. Harry L. Rogers was appointed paymaster May 2, 1898, to fill the vacancy caused by Major Arthur's retirement.

On June 10, 1898, Col. G. W. Candee, assistant paymaster-general, died at Chicago, Ill., after nearly thirty-four years' faithful service. At the time of his death he was chief paymaster, Department of the Lakes. Owing to the vacancy occasioned by the death of Colonel Candee, Lieut. Col. A. B. Carey was promoted to colonel and assistant paymaster-general, and Maj. C. I. Wilson was promoted to lieutenant-colonel and deputy paymaster-general.

Maj. J. A. Watrous was appointed to fill the vacancy in the corps occasioned by the promotion of Lieutenant-Colonel Wilson June 15, 1898.

PAYMASTERS' CLERKS.

There is no class of employees in the service of the Government who are so poorly paid in proportion to their services as the paymasters' clerks. Their business requires a thorough knowledge of bookkeeping and of stating and rendering accounts. They must be conversant with the Army Regulations and all orders and decisions governing the payment of accounts. They are subject to change of location, with the attendant expenses. At present the salary is \$1,400 per year, with no prospect of advancement.

I would therefore again recommend to Congress that legislation be had increasing the pay of paymasters' clerks 10 per cent for every five years of service, the salary not to exceed \$1,800.

CLERICAL FORCE.

The regular clerical force in the Paymaster-General's Office has shown the result of thorough training and experience in official duties. The force had been reduced to the minimum strength; the new condition of affairs greatly increased the work of the office; the temporary appointees required instruction, taking up the working time of the regular clerk; the new paymasters were seeking information continually; at the same time the increased current work had to be kept up, the accounts of the new paymasters required close inspection, and many letters of instruction were prepared, requiring much patience and judg-

ment in their preparation. All this has been attended to with promptness and regularity.

On account of the overcrowded condition of the work in some branches of the office, it required that a portion of the force, and sometimes the entire force, should remain and work over-hours. This additional service was rendered willingly and without complaint, and I would recommend that Congress provide remuneration for such service.

Attention is invited to the exhibits which are appended, showing in detail the accounts with the several appropriations and the receipts and expenditures of the individual officers of the Pay Department.

Very respectfully,

T. H. STANTON,
Paymaster-General United States Army.

THE SECRETARY OF WAR.

Statement showing the number of pay trips made, number of days consumed in travel, posts paid, and amount of field and office disbursements made by each disbursing officer of the Pay Department, United States Army, during the fiscal year ending June 30, 1898.

Rank and name.	Num-ber of pay trips.	Days consumed.	Num-ber of posts paid.	Miles traveled.					Payments.			Mileage paid to paymas-ters.	Mileage paid to paymas-ters' clerks.	
				Ambu-lance.	Stage.	Railroad.	Steamer.	Other convey-ance.	Total.	In field.	In office.			Total.
<i>Assistant paymasters-general.</i>														
1. Glenn, Geo. E.	8	24	8			2,376	220	8	2,604	\$92,140.01	\$1,426,344.59	\$1,518,484.60	\$103.84	\$56.32
2. Candee, Geo. W.	20	25	71			52			52		934,655.14	934,655.14	2.08	
3. Carey, A. B.	4	4	43			52		42	94	12,093.31	388,826.60	400,919.91	3.76	3.76
<i>Deputy paymasters-general.</i>														
1. Cox, F. M.	18	21	38	34		240	732		1,006	78,548.29	336,812.50	415,361.79	34.40	66.14
2. Bates, A. E.	12	12	32				62		62		319,515.27	319,515.27	2.48	
3. Wilson, C. I.	5	5	8			112	46		158	21,650.49	554,977.72	576,628.21	8.07	8.07
<i>Paymasters.</i>														
1. Towar, A. S.	7	7	62			204			204	37,832.24	736,848.21	774,730.45	6.20	6.69
2. Arthur, Wm.	11	11	11			308			308	77,259.87	307,682.20	384,941.57	2.88	12.70
3. Safford, C. C.	12	27	31	10		4,141			4,151	141,367.36	408,271.75	549,639.11	106.04	223.12
4. Baird, Geo. W.	6	13	35			72	130	96	298	150,665.77	469,894.21	620,489.98	12.00	11.17
5. Dodge, F. S.	30	33	41			2,712			2,712	217,236.49	500,148.14	717,384.63	108.80	156.32
6. McClure, Chas.	37	21	36	20		2,039			2,059	183,590.40	500,148.14	683,738.54	81.56	78.70
7. Witcher, J. S.	10	29	61	133		1,283	397		1,313	159,711.22	284,940.72	444,651.94	68.84	73.02
8. Whipple, C. H.	9	14	48			224		88	430	258,295.79	726,926.99	985,223.78	17.20	26.65
9. Comegys, W. H.	12	37	90			600	559		1,159	223,723.19	726,926.99	950,650.18	46.36	46.36
10. Tucker, W. F.	8	46	46			5,859		117	5,976	212,906.00	247,489.82	460,455.82	237.16	238.72
11. Muhlenberg, J. C.	12	39	52	88		3,728	642		4,458	185,346.49	909,140.89	1,094,487.38	156.48	294.14
12. Smith, Geo. E.	28	53	67			4,922	282		5,204	296,696.42	909,140.89	1,175,807.31	208.16	246.74
13. Baker, J. P.	16	27	79			3,204			3,204	419,014.22	548,138.89	967,153.11	128.16	128.16
14. Halford, E. W.	14	39	54	8		2,722	218	32	2,980	189,765.32	303,281.58	503,046.90	19.12	134.60
15. Hamner, W. H.	8	15	32			876	518		1,316	212,433.42	189,536.33	401,969.75	50.92	55.93
16. Kilbourne, C. E.	24	29	50	61		544	1,568	208	2,652	291,260.42	227,765.36	519,025.78	101.92	172.53
17. Jackson, A. H.	4	5	61	12		544			556	16,371.68	409,497.34	425,869.02	28.69	28.69
18. Bullis, J. L.	2	15	56			2,261			2,261	68,079.09	275,597.93	343,677.02	90.44	90.44
19. Wham, J. W.	1	7	7	198	4	32		18	252	126,927.06	9,782.78	136,710.44	10.08	10.73
20. Rogers, H. L.														
21. Watrous, J. A.														
<i>Additional paymasters, United States Volunteers.</i>														
Hammond, F. M.	1	6	1	108		15		93	216	78,375.53	916.13	79,191.66	8.64	11.29

PAYMASTER-GENERAL.

Acting paymasters.	327	602	1,134	735	4	43,487	5,598	703	50,476	4,128,670.07	12,906,937.22	1,974.16	2,306.77
Fishback, G. W.										28,551.91			
Ray, B. B.	1	5	5	108		72			180	62,988.89	35,077.87		
Stewart, George C.										14,702.28	954.13	7.20	9.20
Rochester, W. B., Jr.	1	6	1			710			710	17,960.43		26.40	28.40
Holloway, George T.										43,057.62			
Smith, R. S.	1	5	1	16		710			728	18,897.25		28.40	28.40
Howell, S.										18,897.25			
Walton, C. S.										23,347.93			
Schofield, W. B.										9,627.39			
Deyon, M. R.										19,675.52			
Houston, J. H.	1	1	2			28			28	58,261.73		28.40	28.40
Pickett, Geo. E.	1	6	1			710			710	15,948.77		28.40	14.20
Becker, Otto	1	5	1			710			1,169	18,527.57	14.20	28.40	14.20
Foot, N. J.	1	9	2			1,169			1,169	41,284.68		46.76	46.76
Fowler, E. S.	1	1	1			58			58	5,243.17	21,097.60	2.32	2.32
Sheary, M. F.										12,286.31			
Acting paymasters.													
Abercrombie, W. R., captain.										630.00			
12th Inf.													
Brookfield, R. M., lieutenant, 2d Inf.										513.32			
Castner, J. C., lieutenant, 4th Inf.										513.32			
Glenn, E. F., captain, 28th Inf.										630.00			
Lowe, P. G., lieutenant, 18th Inf.										600.00			
Maus, M. P., captain, 1st Inf.										2,523.80			
Milley, J. D., captain, 1st Inf.										1,000.00			
Total	327	602	1,134	735	4	43,487	5,598	703	50,476	4,128,670.07	12,906,937.22	1,974.16	2,306.77

PAYMASTER-GENERAL'S OFFICE, October 26, 1898.

WAR 98—55

Statement by appropriations of approved and suspended disbursements in paymasters' accounts during the fiscal year ending June 30, 1898, showing also balance of suspensions remaining June 30, 1897, removed during the fiscal year, and the balance remaining June 30, 1898.

Title of appropriations.	Disbursements.			Suspensions.		
	Total.	Approved.	Suspended.	Amount of suspensions on books June 30, 1897.	Total suspensions.	Amount of suspensions removed during fiscal year ending June 30, 1898.
Pay etc. of the Army:						
January 1, 1899.....	\$1,510,150.64	\$1,518,207.65	\$942.99		\$942.99	\$28.71
1898.....	13,849,122.56	13,841,013.04	8,106.52		8,106.52	2,817.75
1897.....	775,004.12	774,792.03	212.09	\$500.10	802.49	74.65
1896.....	1,452.48	1,452.48		231.87	24.87	47.54
1895 and prior years.....				6,588.23	6,588.23	7.50
Pay of Military Academy:						
1898.....	277,068.39	277,068.39	2.00		2.00	6,559.92
1897.....	23,245.27	23,246.27		54.88	54.88	2.00
Mileage to officers traveling without troops, January 1, 1899.....	17,313.55	17,313.55				.71
Mileage to officers traveling without troops, 1898.....	78,254.54	77,822.56	331.98		331.98	98.62
Mileage to officers traveling without troops, 1897.....	7,624.11	7,624.51	3.60	144.40	148.00	146.24
Mileage to officers traveling without troops, 1896.....	5.60	5.60		1.16	1.16	1.16
Mileage to officers traveling without troops, 1895 and prior years.....				30.87	30.87	30.87
Bounty to Fifteenth and Sixteenth Missouri Cavalry Volunteers.....	166.06	166.06				
Extra pay to officers and men who served in Mexican war.....	132.00	132.00				
Three months' pay proper.....	177.60	177.60				
CERTIFIED CLAIMS.						
Pay, etc., of the Army.....	6,990.48	6,990.48				
Pay of Military Academy.....	8.33	8.33				
Pay of volunteers.....	460.42	460.42				
Pay of volunteers, Mexican war.....	181.64	181.64				
Traveling expenses of California and Nevada volunteers.....	326.51	326.51				
Bounty under act of July 4, 1864.....	33.33	33.33				
Commutation of rations to prisoners of war in rebel States and to soldiers on furlough, 1898.....	1,434.17	1,434.17				
Pay of two and three year volunteers, 1898.....	235,103.97	235,103.97				
Pay of two and three year volunteers, 1897.....	24,522.83	24,522.83				
Pay of two and three year volunteers, 1896.....	135.85	135.85				
Pay of two and three year volunteers.....	1,638.84	1,638.84				
Bounty to volunteers, their widows and legal heirs, 1898.....	137,175.00	137,175.00				
Bounty to volunteers, their widows and legal heirs, 1897.....	14,427.23	14,427.23				
Bounty to volunteers, their widows and legal heirs, 1896.....	263.19	263.19				
Bounty to volunteers, their widows and legal heirs.....	1,522.24	1,522.24				

Bounty under act of July 28, 1866, 1896	18, 126.43	18, 126.43							
Bounty under act of July 28, 1866, 1897	1, 391.15	1, 391.15							
Bounty under act of July 28, 1866, 1896	22.22	22.22							
Bounty under act of July 28, 1866	100.00	100.00							
NATIONAL DEFENSE (WAR).									
Allotment of April 14, 1898	37, 021.94	37, 021.94	160.64						99.84
Allotment of April 16, 1898	5, 000.00	5, 000.00	52.80			160.64		60.80	52.80
Total	17, 034, 607.29	17, 024, 791.67	9, 815.68	7, 434.81	17, 250.43			4, 038.66	13, 211.77

PAYMASTER-GENERAL.

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	140,000.00	.25	140,000.25	136,710.44	.25	8,280.56	140,000.25
Rogers, H. L. / Watrous, J. A. g Wham, J. W. h							
<i>Majors and addi- tional paymasters, U. S. Volunteers.</i>							
Houston, J. B.	177,000.00	5.45	177,005.45	58,281.73	5.45	16,440.90	177,005.45
Rochester, W. B., jr.	65,000.00	103.43	65,000.00	132.00	103.43	72,188.21	65,235.43
Stewart, W. C.	70,000.00	2.70	70,002.70		2.70	50,000.00	70,002.70
Sherry, M. F.	16,440.90	14.82	16,455.72		14.82	6,046.98	16,455.72
Smith, G. W.	36,000.00	91.38	36,013.38	822.00	91.38	4,154.59	36,013.38
Smith, R. S.	45,449.48		45,449.48			7,779.86	45,449.48
Dayton, M. R.	19,675.52		19,675.52			2,391.86	19,675.52
Kearl, W. G.	50,000.00		50,000.00			50,000.00	50,000.00
Ketchen, T. D.	50,000.00		50,000.00			50,000.00	50,000.00
Fitzgerald, H. C.	50,000.00		50,000.00			50,000.00	50,000.00
Seares, M.	50,000.00		50,000.00			50,000.00	50,000.00
Lord, H. M.	63,809.88		63,809.88			35,288.11	63,809.88
Becker, Otto	58,856.50	6.50	58,856.50		6.50	58,856.50	58,856.50
Hofrell, S.	18,000.00		18,000.00			30,012.76	18,000.00
Holmes, G. T.	52,254.53	41.70	52,254.53	1,212.83	41.70	11,840.65	52,254.53
Ray, B. W.	373,884.48	48.88	373,884.48		48.88	120,058.10	373,884.48
Twiler, E. S.	23,790.00	5.50	23,790.00		5.50	23,790.00	23,790.00
Walton, C. S.	15,072.58	72.58	15,072.58		72.58	4,322.17	15,072.58
Schofield, W. B.	80,000.00	21.00	80,000.00		21.00	80,000.00	80,000.00
Hannum, F. M.	45,925.00	4.00	45,925.00		4.00	4,640.32	45,925.00
Foot, N. J.	16,000.00		16,000.00			51.28	16,000.00
Pickett, G. E.							
<i>Acting disbursing officers.</i>							
Maus, M. P.	3,000.00		3,000.00			2,523.80	3,000.00
Glenn, E. F.	630.00		630.00			630.00	630.00
Abercrombie, W. R.	1,000.00		1,000.00			1,000.00	1,000.00
Miley, P. D.	600.00		600.00			600.00	600.00
Low, F. G.	513.32		513.32			513.32	513.32
Brookfield, R. M.	513.32		513.32			513.32	513.32
Cashner, J. C.							
Total	10,675,355.87	169,624.18	10,844,980.05	1,205,366.42	169,624.18	10,675,355.87	10,844,980.05

a Died June 10, 1898.
 b Promoted colonel June 10, 1898.
 c On detached service.
 d Promoted lieutenant-colonel June 10, 1898.
 e Retired April 30, 1898.
 f Appointed May 2, 1898.
 g Appointed June 15, 1898.
 h Suspended April 8, 1898.

PAYMASTER-GENERAL'S OFFICE, August 3, 1898.

Statement of the account of the Pay Department, United States Army, with the

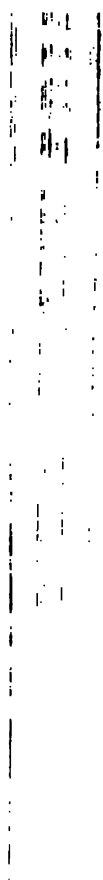
Appropriations.	In account with the Treasury.					Total.
	Balance in the Treasury, July 1, 1897.	Amount of appropriations and transfer warrants.	Unexpended balances deposited.	Paymasters' collections deposited.	Repayments in settlement of accounts.	
Pay, etc., of the Army, Jan. 1, 1899		\$7,176,248.21				\$7,176,248.21
Mileage to officers traveling without troops, Jan. 1, 1899		60,000.00				60,000.00
Pay, etc., of the Army, 1898		14,109,174.00	\$442,983.57	\$98,338.34	\$208.75	14,656,669.08
Pay of Military Academy, 1898		306,180.83		2.57		306,182.90
Mileage to officers traveling without troops, 1898		80,000.00	745.46	107.74		80,853.20
Pay, etc., of the Army, 1897	\$18,549.19	293,697.90		8,316.95	28.75	320,592.79
Pay of Military Academy, 1897	1,482.61		4,462.04	57.72		6,002.37
Mileage to officers traveling without troops, 1897	23,268.83			1,309.78	502.48	25,081.09
Pay, etc., of the Army, 1896	144,443.33		5,837.12	168.23		150,448.68
Pay of Military Academy, 1896	15,607.07					15,607.07
Mileage to officers traveling without troops, 1896	25,215.83			32.88	7,031.45	32,280.16
Pay, etc., of the Army, 1895 and prior years			2,178.25	427.01		2,605.26
Pay of two and three year volunteers, 1871 and prior years					36.10	36.10
Bounty to Fifteenth and Sixteenth Missouri Cavalry Volunteers		166.66				166.66
Extra pay to officers and men who served in Mexican war		100.00				100.00
Three months pay proper						
CERTIFIED CLAIMS.						
Pay, etc., of the Army	738.95	6,956.82				7,695.77
Pay of Military Academy		8.38				8.38
Commutation of rations to prisoners of war in rebel States, and to soldiers on furlough, 1898		2,800.00				2,800.00
Pay of two and three year volunteers	4,704.05	1,671.85	3.13			6,379.03
Pay of two and three year volunteers, 1895 and prior years			197.72			197.72
Pay of two and three year volunteers, 1896	986.99		4,861.34	1.95	.22	5,850.50
Pay of two and three year volunteers, 1897		50,000.00	20,000.00			70,000.00
Pay of two and three year volunteers, 1898		325,000.00				325,000.00
Bounty to volunteers, their widows, and legal heirs	16,522.81	1,745.77				18,268.58
Bounty to volunteers, their widows, and legal heirs, 1895 and prior years			978.57			978.57
Bounty to volunteers, their widows, and legal heirs, 1896	40,271.66		10,153.25		4.76	50,429.67
Bounty to volunteers, their widows, and legal heirs, 1897	30,075.00		15,000.00			45,075.00
Bounty to volunteers, their widows, and legal heirs, 1898		190,000.00				190,000.00
Bounty under act of July 28, 1866	2,097.45	242.90				2,340.35
Bounty under act of July 28, 1866, 1895, and prior years			897.41			897.41
Bounty under act of July 28, 1866, 1896			5,582.08			5,582.08
Bounty under act of July 28, 1866, 1897			2,000.00			2,000.00
Bounty under act of July 28, 1866, 1898		22,000.00				22,000.00
Traveling expenses of California and Nevada volunteers	187.21	326.51				513.72
Pay of volunteers		460.42				460.42
Pay of volunteers, Mexican war		181.64				181.64
Bounty under act of July 4, 1864		33.33				33.33
SPECIAL ACCOUNTS.						
National defense (war), allotment of April 14, 1898		50,000.00		3.08		50,003.08
National defense (war), allotment of April 16, 1898		5,000.00				5,000.00
Total	324,150.98	22,681,944.67	515,879.94	108,766.25	7,807.51	23,638,549.35

PAYMASTER-GENERAL.

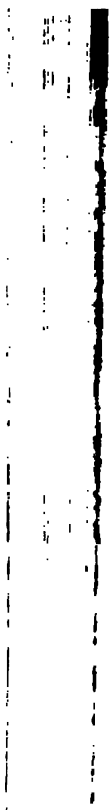
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appropriations subject to its control during the fiscal year ending June 30, 1898.

In account with the Treasury.					Balance in the hands of paymasters, June 30, 1898.	Total balances, June 30, 1898.
Amount drawn by requisition.		Amount covered into surplus fund.	Total.	Balance in the Treasury, June 30, 1898.		
On Pay Department request.	On Treasury settlements.					
\$6,175,000.00			\$6,175,000.00	\$1,001,248.21	\$4,658,474.61	\$5,659,722.82
50,000.00			50,000.00	10,000.00	32,686.45	42,686.45
14,643,616.00	\$77.57		14,643,693.57	7,006.09	273,825.50	280,831.59
294,000.00			294,000.00	12,132.90	16,841.06	28,973.96
79,000.00	502.48		79,502.48	1,350.72		1,350.72
310,150.00	179.95		310,329.95	10,262.84	9,177.02	19,439.86
				6,002.37		6,002.37
3,000.00	14,491.88		17,491.88	7,589.21	1,936.04	9,525.25
	71.55	\$150,377.13	150,448.68			
		15,607.07	15,607.07			
5.60	453.01	31,821.55	32,280.16			
		2,605.26	2,605.26			
		36.10	36.10			
166.66			166.66			
	100.00		100.00		368.00	368.00
					478.78	478.78
6,000.00			6,000.00	1,695.77	1,539.45	3,235.22
8.33			8.33			
2,800.00			2,800.00		1,365.83	1,365.83
				6,379.08	3,280.87	9,659.90
		197.72	197.72			
		5,850.50	5,850.50			
50,000.00			50,000.00	20,000.00	5,477.27	25,477.27
265,200.00			265,200.00	59,800.00	30,096.03	89,896.03
				18,268.58	5,059.84	23,328.42
		978.57	978.57			
		50,429.67	50,429.67			
				45,075.00	5,458.24	50,533.24
161,000.00			161,000.00	29,000.00	23,825.00	52,825.00
				2,340.35	1,566.66	3,907.01
		897.41	897.41			
		5,582.08	5,582.08			
				2,000.00	2,060.02	4,060.02
22,000.00			22,000.00		3,873.57	3,873.57
326.51			326.51	187.21		187.21
460.42			460.42			
181.64			181.64			
33.33			33.33			
50,000.00			50,000.00	3.08	13,031.34	13,034.42
5,000.00			5,000.00			
22,117,948.49	15,876.44	264,383.06	22,398,207.99	1,240,341.36	5,090,871.68	6,330,712.94



REPORT OF THE CHIEF SIGNAL OFFICER.



REPORT OF THE CHIEF SIGNAL OFFICER.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, October 10, 1898.

SIR: I have the honor to make the following report of the operations of the Signal Corps of the Army for the fiscal year ending June 30, 1898:

In view of the importance of events since June 30, there have been incorporated in this report the story of the war as far as the Signal Corps is concerned to September 30, 1898.

To a greater extent than any other corps of the Army, the Signal Corps has had its field of operation and sphere of usefulness expanded by the Spanish-American war. While the Army has been increased ten-fold this corps has been enlarged more than twenty-fold, from 60 officers and men to 1,300. Despite this astounding increase, rendered absolutely necessary by the insistent demands of the age for instant communication by telegraph or telephone, there has been no hour of leisure for any company of the Signal Corps. On the other hand, so active and acceptable have been the operations of the volunteer officers and men that no army outside the country from the Philippines to Porto Rico or Cuba has waited a day for its telegraph or telephone, and the commands and supply depots of no great military camps within the United States have been without their independent system of electrical intercommunication.

In the attached reports (Appendixes 1 to 13) of subordinate officers will be found detailed accounts of the organization and operations of the Volunteer Signal Corps, with which the fortunes of the regular corps have been inextricably entwined. This report narrates briefly the more important features of the active participation of the Signal Corps in the war.

PRELIMINARY CONDITIONS.

The approach of war found the 8 available officers and 50 men of the Signal Corps widely scattered—from Oregon to Texas to the south and New York to the east. There were not more than 2 men at any station, and only \$800 was available for war expenses. Theoretically, under the restricted policy as to the Signal Corps, there should have been a reserved force of 454 officers and 1,816 enlisted men in the line of the Army from which to draw signalists and telegraphers for campaign work. This system broke down absolutely, as always in the past, a fact that the Chief Signal Officer has pointed out for years in his reports on Indian campaigns and other army operations. Only 7 officers and about 50 partly trained men were obtainable from the line of the Regular Army, and these were largely drawn from commands having no hope of active duty. Where a chance to face the enemy obtains, the line soldier will not leave his comrades for staff duty, however important, except by imperative orders, and the American people glory in this esprit de corps.

When war was declared the Chief Signal Officer immediately asked orders that assembled with the moving troops every signal man but five, while every officer on active duty sought and obtained orders for field service, the Chief Signal Officer working alone for nearly two months without a skilled assistant in his office, so that field operations might not later suffer for want of competent signal officers with the newly organized army corps. To add to the difficulties of the situation the act for the organization of the Volunteer Army, through oversight, failed to provide for the electrical work of the volunteers, and the Chief Signal Officer was obliged to resort to Congress for special legislation.

MILITARY TELEGRAPH CABLES.

With the increasing prospects of war, public attention was called to the harbor defenses. For six years the Chief Signal Officer had unavailingly urged on Congress the absolute necessity of perfecting its costly system of coast defenses by establishing electrical intercommunication between adjacent fortifications, especially in the harbors of New York, Boston, and San Francisco, so that the entire system of defense could be controlled by one mind. Despite the war emergency, Congress, in March, 1898, refused an appropriation for this purpose. Recourse was then had to the Secretary of War for an allotment from the national defense fund for this purpose, and on April 5 \$23,700 was allotted for New York, the other harbors being provided for later. As a result cables have been laid between adjacent fortifications in the harbors of Boston and New York, while the cable for San Francisco is on the ground awaiting final decision as to the best method of providing for the needs of this important harbor. In addition, cables connecting either adjacent forts or single forts with the commercial telegraph system have been made at Newport, R. I., in Long Island Sound, near Philadelphia, near Southport, N. C., in Charleston, S. C., harbor, and near New Orleans, La. The exterior defenses of the city of Washington, Forts Washington, Myer, and Sheridan's Point have been connected telephonically with each other and with the War Department. Block Island has also been connected by a telephonic cable with the mainland at Narragansett Pier.

ELECTRICAL INSTALLATIONS AT ARMY POSTS.

Coincident with the demands for proper harbor defenses arose the question of electrical installation for the fire-control system, an absolutely necessary adjunct of disappearing guns. Under this system the range officer, located a long distance from the batteries, determines every minute or less the position of the enemy's ships and communicates this information to the officer who controls the fire. The control officer plots the positions and at a suitable instant causes through the firing officers the mortars to be discharged or one or all the guns to rise, deliver their fire, and then disappear in their pits. Although instant and continuous telephonic or electrical communication is indispensable between the range, the control, and the firing officers, yet there existed no appropriation for such an electrical installation, nor did any installation exist save at two or three experimental stations which had been provided with tentative installation. Charged by orders with the providing of such installation, the Chief Signal Officer has procured the necessary telephonic and electrical instruments, so that every gun can be put in direct communication with the control officer. Other necessary instruments have been contracted for and

manufactured, conforming in all respects to the approved types furnished by the Board on Regulation of Seacoast Artillery Fire. Seventy complete sets thus manufactured are awaiting the instructions of the Artillery Fire Board as to the batteries to which they are to be assigned, except about ten sets which have been issued to the more important forts for experiment and test. The electrical installations thus made demand skilled electricians, such as the Signal Corps is to furnish, for their proper care and maintenance. Sergeants will be assigned to the artillery posts for such duty as soon as the exigencies of war service will permit.

The commanding officer at Fort Monroe having reported that he was unable to properly care for the search lights and other electrical instruments, with the consent of proper authorities, the Signal Corps has repaired and put them in good order. As occurred at Camp Montauk, future emergencies may arise where the establishment of an electric-light plant may be demanded in the public interest, in which case the Signal Corps can at any time duplicate its work of installing and operating such a plant without the employment of high-priced civilians.

PROPOSED HAVANA CAMPAIGN.

In connection with the contemplated operations against Havana the Chief Signal Officer caused to be assembled at Tampa, Fla., every signal sergeant that could be possibly spared, and also added thereto every enlisted man of the line who was familiar with the rudiments of signaling and who would accept service. The outlook for the Signal Corps would have been most discouraging if there had not been in existence three small detachments of detailed men of the line, who had been brought together a few weeks earlier for signal instruction through the efforts of Captain Glassford, Lieutenants Greene and Reber, and by authority of Major-General Miles, Brigadier-Generals Otis, Shafter, and Graham. This made available about 45 trained men (signal sergeants) and about 50 detailed partly instructed men, not more than one-third of the number needed for the operations of the Regular Army alone. Every military post in the country was stripped wholly or in part of its signal stores and equipment, and new supplies were ordered to be manufactured without formality of bids. The officers made herculean efforts to perfect by drill and practice these men who had never been able to act in concert since detailed for duty with this Corps. The advantages of recruiting the Signal Corps by selections or competitive examinations from the noncommissioned officers of the Regular Army was strongly emphasized by the readiness with which these men communicated to their comrades skill and efficiency in signal, telegraph, and balloon practice, under conditions that would have seemed impossible to any but experienced and hardened soldiers. Every moment was utilized in preparing for the expected field service.

MANILA CAMPAIGN.

The preparations of the Signal Corps for operations against Havana were interrupted by the capture of Cavite, the occupation of the harbor of Manila, and the demands for a force to operate in the Philippines. Major-General Merritt, realizing the necessity of electrical intercommunication for an army operating far from home in an untried country, asked that he should be supplied with a selected Signal Corps embracing as many Spanish-speaking officers and men as possible. *The Signal Corps is fortunate in the linguistic acquirements of its officers, as half the Corps has a knowledge of Spanish, and the Chief Signal*

Officer was able to send to Manila four officers familiar with Spanish. Lieut. Col. Richard E. Thompson, captain in the regular Corps, whose report forms Appendix No. 1, was made the chief signal officer of the command. Originally the Chief Signal Officer could only spare 6 signal men for this large expedition, but after the organization of the Volunteer Signal Corps, was authorized there were added 13 officers and 110 men. Their proper equipment was very difficult from the fact that the entire Pacific coast had been practically stripped of signal supplies for the use of the Army Corps in Florida, but the Philippine expedition was by dint of especial exertion sent forth so fully equipped that no signal supplies of any kind have ever been called for from Manila and no deficiencies reported.

Official reports indicate that Lieutenant-Colonel Thompson and his officers and men have justified the confidence reposed in them, and in addition to the efficient discharge of their technical duties have contributed their share to the luster gained by American arms in the far east. A war cable was laid between Cavite and the city of Manila. Telephonic and telegraphic communications were established and maintained not only between headquarters of the commanding general and his detached commands and depots, but as our army moved forward the Signal Corps carried into the advanced trenches its telegraph lines and repaired them under fire, whereby communication was maintained throughout the campaign. When the final assault came one company of the Signal Corps ran the field-telegraph line up to the open beach and established an advanced station under fire of the enemy's second line. Another party, led by Captain McKenna, marched up the beach with the firing line, their signal flags displayed, so that the fire of the navy should fall in advance of the army, and, displaying these flags as the first emblems of the United States in the enemy's fort, established an advanced telegraph station under the fire of the enemy's second line, and maintained communication with both wings of the army till the enemy's positions were carried. Lieut. Col. R. E. Thompson and five other officers of the Signal Corps were brevetted for gallant and distinguished service, and eleven enlisted men were recommended for rewards for gallantry and distinguished conduct.

After the occupancy of Manila Lieutenant-Colonel Thompson repaired the Manila-Hongkong cable and reopened it for use four days in advance of the expected time, which was supposed to depend on the arrival of the English cable ship then en route from Singapore.

VOLUNTEER SIGNAL CORPS.

Affairs had, however, reached such a point in early May that the necessity of organizing a Volunteer Signal Corps was obvious to Congress, for the regular corps could not even furnish one officer to each authorized army corps.

The Volunteer Signal Corps was organized under the provisions of the acts of Congress approved May 18, 1898, and July 7, 1898. These acts looked to a corps whose maximum number should be 138 officers and 1,115 men. There were never in service, however, at any one time more than 115 officers and about 1,000 men.

Recruiting commenced June 2, and in thirty days the corps was not only practically organized and partly equipped, but one of the companies was already in the field with the army before Santiago de Cuba. The recruiting and equipment of the Volunteer Signal Corps, on lines laid down by the Chief Signal Officer, was intrusted to Col. H. H. C. Dunwoody, Signal Corps, whose report, Appendix 2, gives interesting details. Colonel Dunwoody applied himself to his difficult task with

such a degree of intelligence, skill, and energy as insured from the very out set the successful organization of the Volunteer Signal Corps. The difficulties of clothing, equipping, and outfitting the volunteer corps were almost insurmountable considering the limited time, but tact and persistency worked wonders. Colonel Dunwoody wisely insisted on the corps being equipped for field service before any company should leave its original camp. A most wise decision, that contributed greatly to its efficiency.

The lines on which the corps was organized are of interest and may be of value in future wars, inasmuch as the principles involved are believed to have been most essential factors in the subsequent efficiency of the corps. The original field officers were appointed from the captains and lieutenants of the regular Signal Corps, as far as their limited number permitted, that is, from officers who had attained their commissions by competitive examinations, and their promotions after rigid examination, thus insuring professional fitness and ability, mentally, morally, and physically.

Fourteen of the highly educated and trained enlisted men, first-class sergeants, were promoted to be second lieutenants. Six captains were promoted from lieutenantcies of the regular line and two others from graduates of West Point in civil life. Other officers, as far as possible, were such as had served in the Signal Corps of the National Guard.

It should be added that both the President and Secretary of War gave their moral support to the Chief Signal Officer in the organization of this corps in an efficient manner. The greatest safeguard of the corps, however, was the action of Congress in enacting the provision recommended by the Chief Signal Officer, that two-thirds of the officers and enlisted men should be skilled electricians or telegraphers.

Under these conditions the original selections for field officers were, without exception, highly trained officers in the prime of life, thoroughly skilled in the specialties of the corps, not only admirably fitted for administrative duties, but also capable of arduous campaigning. It may be added that not one of these officers was either invalided or obliged to quit his duties during the war, though they served at Santiago, in Porto Rico, and at Manila.

The subordinate officers were almost entirely trained in electrical pursuits or in duties of an allied character in civil life, where special intelligence and ability are necessary to insure success. These methods reduced to a minimum appointments based solely on influence.

The result of thus selecting officers and men of business experience and executive ability has been so strikingly successful as to emphasize the advisability of similar legislative restrictions should another volunteer army be raised, or the Signal Corps of the Army be increased.

It is to be stated that almost without exception the officers of the Signal Corps proved efficient, and that the body of enlisted men challenged any other corps or branch of the Army to produce its equal for ability, intelligence, and amenability to discipline. Their service was uniformly marked by cheerfulness, zeal, and good conduct, and was characterized by that resourcefulness which is an especial characteristic of the typical American soldier.

The successful interest of the officers in caring for their men and the self-reliance of the men themselves are strikingly illustrated by the fact that with a force of 1,300 men, both the volunteer and regular corps, up to the date of the orders for muster out of the first company, lost only five men, a death rate unequaled, it is believed, by any corps of the Army which operated in every great camp in the country, and in every campaign abroad from the Philippines to Cuba and Porto Rico.

SANTIAGO DE CUBA CAMPAIGN.

Especial interest for the Signal Corps attaches to this siege, since, as is stated elsewhere, the Chief Signal Officer of the Army, by his representations, was responsible for the inception of this campaign, which proved to be the turning point of the war. The work of the Signal Corps therewith naturally divides itself under three independent lines:

(1) The rearrangement and installation of an electrical communication whereby the War Department was brought as near to the army, and able to exercise as potent an influence therewith, as though the operations were conducted at distances of 100 miles instead of 1,500.

(2) The signal work proper, involving communication, electrically and otherwise, between the commanding general of the Fifth Army Corps, his division and brigade commanders, the transports, the supply depots, and the cooperating fleet of the Navy.

(3) War ballooning.

REARRANGEMENT OF CABLES AT SANTIAGO.

The rearrangement and installation of electrical communication in Cuban waters were greatly facilitated from the fact that Major-General Miles, commanding the Army, had earlier requested the Chief Signal Officer to make similar provisions for the proposed campaign against Havana. For the Havana campaign an allotment of \$80,000 had been obtained, but the Chief Signal Officer at the very outset found himself hampered by the fact that there was no submarine cable in the American market. All that was available at the beginning of the war had been previously purchased by the Navy Department, and for theoretical defensive purposes laid between Key West and Tortugas.

The details of this work of rearrangement were intrusted to Col. (then Capt.) James Allen of the Volunteer Signal Corps, for which he was courteously spared by Major-General Miles, commanding the Army, to whose staff he was attached. Colonel Allen's report, Appendix 3, sets forth the details.

The hearty cooperation of Gen. Thomas T. Eckert, Mr. Thomas F. Clark, of the Western Union Telegraph Company, and of Mr. James Scrymser, of the Mexican Telegraph Company, was of the greatest assistance; indeed, without their aid success was doubtful. The preparatory work was conducted with such method and discretion that a ship was chartered, cable gear installed, and cable manufactured in New York without attracting general attention, and Colonel Allen sailed from Key West, Fla., for Santiago de Cuba on May 29, after several weeks of preparation, without the matter being heralded in the public press. Sixty miles of cable were deemed essential to success, and at first there was no prospect of obtaining any except by the slow process of manufacture at the rate of a mile per day. Two small lots were picked up here and there, but when the time for sailing came there were only 45 miles on board. The Chief Signal Officer decided to act, and ordered Colonel Allen to sail under the unjustified belief that the remaining 15 miles could be forwarded in time for use in the campaign. The steamer chartered for the use of the Signal Corps was procured through a third party, and was fitted up with cable gear of the Mexican Telegraph Company, the only available set of cable gear in the United States, as the superior set belonging to the Western Union Telegraph Company had been placed on the U. S. S. *Mangrove*, where it remained unused throughout the war. The 15 miles of cable deemed absolutely essential had not reached Colonel Allen when orders were given him to immediately leave Key West.

When the orders were given for departure the captain and crew refused to sail, but finally preferred the dangers of the Cuban coast to facing in the United States court a suit for breach of contract.

Appreciating the technical difficulties which attended the work, Colonel Allen engaged for the expedition 16 men skilled in cable repairs, but at the last moment no less than 13 absolutely refused all offers of increased salary and other inducements and declined to sail. In this emergency Colonel Allen was authorized to take the only available sergeants (three in number) of the regular Signal Corps, while the Adjutant-General of the Army came to the rescue by authorizing 10 volunteers from the First Regiment of Artillery at Key West. With Capt. M. L. Hellings, of the United States Volunteer Signal Corps, a cable expert, as an assistant, and the motley force of men innocent of any experience of sea life or knowledge of cable work, Colonel Allen hastily put to sea. The expedition arrived off Santiago de Cuba June 1, 1898, and Colonel Allen immediately began his work, the first phase of which was the destruction of the submarine telegraphic communication of the army.

Long before the expedition sailed the Chief Signal Officer had carefully considered the question of cable cutting, and had announced his official opinion that the destruction of a cable, even though the property of a neutral, was fully justified, provided that operations were confined within the territorial jurisdiction of the enemy. The blockading of a port makes the operation by neutrals of a steamship line an action punishable by the destruction or confiscation of the ships thus operated. The introduction of articles contraband of war similarly results in the seizure or destruction of the articles thus introduced, and it can not be doubted that letters or messages are thus contraband of war. The operation of a submarine cable and the transmission of telegrams are far more injurious than the delivery of letters, in view of the secrecy and rapidity with which cable messages are thus introduced. The cases of the West Indies and Panama Telegraph Company and of the Cuba Submarine Company were even more pronouncedly contraband and liable to destruction, as these companies had certain exclusive privileges or received subsidies from the Spanish Government.

In addition, the International Convention in adopting regulations for the protection of cables made them applicable only during peace. With these views, Colonel Allen was ordered by the Chief Signal Officer to destroy these cables and to confine his operations within the jurisdiction of Spain in Cuban waters.

The physical obstacles to success were extraordinary, it being a coral coast washed by a sea that deepens with a rapidity almost unknown elsewhere, the water attaining a depth of 7,000 feet within a marine league of the shore. Besides, the irregularity of the coral bottom is so extraordinary as to make dredging with ordinary cable gear extremely difficult and ineffective. Energy, application, and untiring effort worked out success. One cable was raised about 5,000 feet, when it broke. A second cable was raised 6,240 feet and a section successfully removed from it. It eventually transpired that these breaks were of one and the same cable, it having been severed at two points. Most persistent efforts to find the third cable failed, and with good cause, as it was later learned that it did not enter the main channel, as had been supposed, but miles to the eastward.

During this prolonged grappling the dangers of the situation gradually dawned on the working force of the *Adria*, who had not realized that they had been working within the range of the Spanish guns.

Finally the bombardment of our Navy and the fire of the enemy's batteries left no doubt, for one Spanish shell passed directly over the *Adria*. While the American contingent were willing to remain and pursue their dredging, the alien force which navigated the ship objected to further operations at that point.

During the week that Colonel Allen pursued his work within range of the Spanish batteries he was under obligations to ships of the Navy for protection against a Spanish torpedo boat that threatened his destruction and for aid in handling the cables. Captains Clark, U. S. S. *Oregon*; Philip, U. S. S. *Texas*, and Lyon, U. S. S. *Dolphin*, were especially active and obliging.

Colonel Allen, being unable to navigate the ship with his American volunteers, and finding it impossible to constrain or persuade the captain and engineer to further operations off Santiago, proceeded to Guantanamo, where cable communication between Santiago de Cuba and Haiti was then interrupted.

The sailing of the Fifth Army Corps for the reduction of Santiago on June 14 changed the condition of affairs and caused the Chief Signal Officer to bend the energies of the Signal Corps to the establishment of speedy communication between the War Department in Washington and the environs of Santiago de Cuba. This involved not only the cooperation of several commercial telegraphic systems, but also the installation and operation of military cable and land lines by the Signal Corps to the point, as yet not definitely known, where our army would land on the southern coast of Cuba. The wide range of probabilities connected with the landing place of the Fifth Army Corps correspondingly increased the difficulties of the Signal Corps. Special arrangements were made with the Postal Telegraph Company, the United States and Haiti Cable Company, and the French Telegraphic Cables Company whereby speedy and effective service within the limit of neutrality were guaranteed as soon as the French cable south of Cuba could be repaired.

Cipher orders were telegraphed to Colonel Allen via Mole St. Nicholas, Haiti, to immediately bend his energies to the restoration of the telegraphic cables between Cuba and Haiti, and the establishment of telegraphic communication with the Fifth Army Corps, wherever it should land. On June 13, renewing his work, he commenced the repair of the French cable near Caimanera. The conditions were adverse, but obstacle after obstacle yielded, and on the night of June 20 he opened station on shipboard and telegraphically reported to the Chief Signal Officer that the Fifth Army Corps had arrived off Santiago that morning and that General Shafter was in consultation with Admiral Sampson. On the following day Colonel Allen landed the cable and restored communication by opening an office at the marine camp at Caimanera, near Guantanamo. The message that communication was permanently restored between the south coast of Cuba and New York was received at the Executive Mansion in Washington five minutes after it was filed at Caimanera. The landing place of the army was then undetermined, but when General Shafter commenced the disembarkation of his corps the next day he was within two hours by boat and wire of Washington, and after June 29 was within twenty minutes of the War Department, with a direct telegraph service that continued uninterruptedly to the date of his occupation of Santiago.

The agreement with the French Telegraphic Cables Company strictly guaranteed its neutrality. The company agreed to accept the same military censorship from the Americans at Playa del Este as it accepted from the Spanish authorities at Santiago. It was agreed by the Chief

Signal Officer that the United States should not interfere with the management of the cable, which, beyond strict military censorship, should remain in complete control of the French company and its agents. In short, this company had the same rights and obligations as devolved on the Western Union Telegraph Company in the operations of its cables between Key West and Havana. As the former cables were cut at Key West to insure rigorous censorship on that line, so the French cable was cut at Playa del Este to insure similar rigid censorship over messages to and from Santiago de Cuba.

Although cable communication was restored from Haiti to Caimanera June 21, the French cable to the west toward Santiago was yet broken. As the company had no repair ship, Colonel Allen acceded to their request that he should assist in repairing this section. While working on this line the French company opened at Siboney a commercial cable office that worked with Playa del Este partly over the Signal Corps war cable and partly over the French line. As soon as he could extend his repairs toward Santiago Colonel Allen restored the French cable to the French company and laid an independent Signal Corps cable between Siboney and Playa del Este, thus insuring uninterrupted communication by having two lines between these points.

In connection with these various cable operations, Capt. Martin L. Hellings and three other officers of the Volunteer Signal Corps so distinguished themselves as to warrant Colonel Allen in recommending them for suitable acknowledgment. In addition, the Chief Signal Officer recommended Colonel Allen for brevet to be brigadier-general of volunteers for his conspicuous gallantry and persistent efforts within range of the enemy's batteries in an unarmed ship, which resulted in the destruction of one of the enemy's cables.

It is to be added that the establishment and operation of the telephone and telegraph line in connection with General Shafter's army depended entirely on the instruments and insulated wire furnished for this purpose by Colonel Allen to Lieut. Col. Frank Greene, chief signal officer, Fifth Army Corps, who was not allowed to take with him the Signal Corps telegraph train that had been sent to Tampa for this expedition.

Santiago having capitulated, Colonel Allen returned to his duties on the staff of Major-General Miles, and on July 21 sailed with that general to assume charge of the signal operations of the army about to invade Porto Rico.

TELEGRAPH AND SIGNAL WORK AT SANTIAGO DE CUBA.

These operations were conducted under the orders of Lieut. Col. Frank Greene, chief signal officer of the Fifth Army Corps, whose report, Appendix 4, sets forth the details. Considering the limits of time and material, Lieutenant-Colonel Greene's work was remarkably successful. His energy and zeal merit especial commendation.

The work was directly done by Maj. G. W. S. Stevens, United States Volunteer Signal Corps, and 35 enlisted men of the Signal Corps, who were charged with the duty of establishing and maintaining communication between the commanding general, his division and brigade commanders, the supply depots, and such other points as he might designate. Each of the 30 transports had been provided at Tampa with a competent signal man, whereby communication was maintained by flag, and all orders were transmitted with precision and celerity throughout the fleet and its convoy during the voyage to Santiago and the disembarkation in Cuba. After disembarkment, detachments, as well equipped as their permitted supplies made possible, were attached

to headquarters of the first division, second division, cavalry division, independent brigade, light artillery battalion, and the cavalry squadron, so as to provide communication between separate parts of the force. The commanding general allowed only means of visual signaling to be taken with the expedition, but the nature of the country, however, soon demonstrated that visual signaling could rarely be depended upon, and that reliable and general communication could only be maintained through the instrumentality of the telegraph or telephone; hence, the men were speedily withdrawn for more successful operations on other lines. The Fifth Army Corps, unfortunately, was not supplied with a field telegraphic train, the major-general of the corps having declined, even after recommendation was made to him through his signal officer, Major Greene, by the Chief Signal Officer of the Army, setting forth the necessity of such apparatus.

The signal detachments organized for this expedition had been depleted by the promotion of 14 sergeants to be second lieutenants in the Volunteer Signal Corps. This left with the purely signal detachments only 11 men who were skilled in signaling. There were, however, in the balloon detachment, 5 skilled signalmen, who were not allowed until June 28. Every effort was made by officers to properly train the men transferred from the line, but, of course, there were no opportunities for concerted action and instruction after leaving Tampa. In consequence the force assembled at Santiago was a makeshift organization that was licked into shape as rapidly as possible. If there were no deficiencies in the operations of this command during the early days of the siege it is astonishing, and the good results flowed, not from the wise provision in time of peace of a skilled force, but from the intelligence of the American soldier, supplemented by the skill of the officers in command.

The lack of thoroughly trained men was not the only serious factor that threatened the efficiency of the signal work. Seeing that visual signaling, which the commanding general of the Fifth Army Corps fully relied upon contrary to professional advice, was practically impossible for land operations and only proved useful between the coast stations and the fleet, it is impossible to surmise what would have been the result had it not been for the supply of insulated wire, telegraphic and telephonic instruments, etc., which Colonel Allen furnished to Lieutenant-Colonel Greepe.

The insulated wire had been especially made for this campaign. It was seven stranded (six steel wires around one of copper), and unusual care was used in its insulation, which was nearly pure rubber. Its tensile strength, lightness, flexibility, and conductivity and insulation were such that it met all requirements under conditions of extraordinary severity. Of it Lieutenant-Colonel Greene says:

Happily provided by the forethought of General Greely, the value of this wire can not be overestimated; having no poles, and the chaparral being too light to sustain the weight of the wire, the perfect insulation of the wire furnished enabled it to be laid up on the brush as far back from the trail or road as possible, or on the ground itself where no other course was open and a clearing back from the trail could be found, and so long as it was not cut or broken communication by its means was perfect.

It should be added that the Chief Signal Officer of the Army, foreseeing the absolute necessity of telegraph facilities for the successful handling of the Fifth Army Corps, determined on his own responsibility to provide against contingent failure and so sent by the Signal Corps steamer, the *Adria*, all available and spare stores that the capacity of the vessel would allow after taking on board its cargo of mili-

tary cable. Although such orders were really unnecessary to such an officer, Colonel Allen was directed to furnish Lieutenant-Colonel Greene and any other officer requiring them such supplies as could possibly be spared, so that needful electric communication might be established and maintained. Without the material furnished it would have been practically impossible for communication to have been maintained and orders given throughout the 13 miles of army front, along the whole of which this insulated wire was finally stretched, from El Caney to Aguadores, for at times the single, narrow roadbed became a knee-deep water course.

Under Lieutenant Colonel Greene's well-directed efforts the construction of telegraph lines was most speedily carried out by Capt (now Maj.) G. W. S. Stevens, United States Volunteer Signal Corps, whose interesting report, Appendix 4, shows the details of his work, which was pursued with a zeal, application, and intelligence that merits special notice, particularly in the utilization of broken instruments and the adaptation of local supplies to the end in view. Not allowed to land until June 27, Major Stevens, with a detachment of 8 men, reconnoitered roads and constructed that day a telephone line to Siboney and over the ridge to the northwest of that place. Major Stevens says:

Owing to the absence of the telegraph section, left at Tampa, the party had but their hands and one pair of pliers—no climbers, tackle, brackets, or tools.

In extending the line along the prolongation of the army's march, there was no telegraph wire available from Spanish forces and the party depended entirely on the insulated 7-stranded wire supplied by Colonel Allen, which was transported partly by pack mules, but which in the construction of the line was necessarily carried by the Signal Corps men. These conditions made rapid progress impossible, but by dint of extraordinary exertions 2½ miles of line were completed on the 28th through dense chaparral to the vicinity of La Guasima. On the day following the line was carried through that place to Sevilla and the headquarters of the cavalry division, and thence to the headquarters of the Fifth Army Corps, within a mile of El Poso or the sugar mill.

Of the physical conditions Major Stevens says:

Each day we had not only the natural obstacles to overcome, but suffered the daily deluge of rain, and, as we worked from early morning till dark, we were wet continually, and often stayed wet at night. The absence of blankets and protection proved trying, but none of us worried over the physical discomforts, our interest being so keen and all of us being too busy to think much of such things. The party had acquired an old kettle, and henceforth we lived and camped wherever we happened to stop.

From early morning of June 30 Major Stevens was able to inform the headquarters of the Fifth Army Corps in the field that through the cables it was connected by wire with America. There were no breaks in this complex system of telegraphic communication save those caused by our own soldiers and other persons occasionally cutting out sections of the insulated wire, partly through ignorance and possibly in some cases intentionally. As the Signal Corps was not allowed to take mounts, the patrol was necessarily slow and fatiguing. In accordance with orders from the commanding general of the corps the line was prolonged July 1, with the proposed forward movement of corps headquarters that day to the sugar mill, and stretched, says Major Stevens,

to El Poso building; but the Spanish shell fire was so accurately covering this space that the building could not be used, and the sugar mill, near by and about 200 yards to the right of and below Grimes's battery, became the field headquarters. The line was tied up to a tree behind the battery and then tapped at the bank of the creek

at the sugar mill for a station, from which communication was had with corps headquarters in the rear and with Siboney.

On the morning of the 2d of July, by directions received from Lieutenant Miley, aid to the general commanding, the line was carried to the San Juan River, the station at "C" being still maintained, and on the afternoon of the 3d, under the direction of the chief signal officer, Major Greene, the line was carried forward and a station was established at the headquarters of General Wheeler at the American trenches on San Juan Hill. From this point the line was afterward carried right and left to the headquarters of Generals Lawton and Bates, respectively, thus connecting by wire the center and both flanks of the American trenches with America.

Of the conduct of the detachment, Major Stevens says he can not speak too highly of the men and general situation:

They were not only intelligent and without thought of comfort or self, but anticipated everything. It was a great pleasure to me to serve with these men. Many of the men were under fire at some time, and I experienced the pleasure of hearing officers voluntarily speak very highly of them. In all the work done by my detachment everything went smoothly, and the establishing of the line was accomplished without a setback.

The insulated wire enabled the line to be built. With iron wire and no equipment the line would have been not only endlessly delayed, but have given much trouble, if successful at all.

The operators were busy day and night, and assisted during the day in laying lines; even a guard was used on two nights at the sugar mill station, so that the men were pretty thoroughly worked. I can not make mention of individuals in the detachment, as the men were all so gratifying in their behavior that I was proud of them and of the corps.

The number of men was far too small for the attendance on the corps had the campaign proved more extended. The men could not stand a lengthy continuance of such effort in the climate. Indeed, the fortunate supplying of the "insulated pliable wire" and the jungle enabled us to accomplish the work with celerity.

Major Stevens, being invalided by yellow fever, was unable to render his report to Lieutenant-Colonel Greene, to which it is now attached, and it was rendered later direct to the Chief Signal Officer.

In connection with the attack of July 1, division and other separate commanders were provided with two suitably equipped signal men. Lieutenant-Colonel Greene reports concerning this work as follows:

On July 1, at 4.30 a. m., Captain Stevens and Lieutenant Burnell, Signal Corps, with a detachment of signal men, began extending the telegraph line from the headquarters camp to the front, a work of great difficulty, as the single, narrow road was crowded with troops marching to the front; but by perseverance the line was pushed forward in the brush well to one side of the road, so that it might not be disabled. Understanding that the advance headquarters were to be located at El Poso, I proceeded to that point early in the morning for the purpose of locating the station. It was intended to place the instrument in the abandoned hacienda of El Poso, and by 8 a. m. the wire was at that point; but, located as it was, upon lower ground and some 150 yards in the rear of Loma del Poso, upon the crest of which Grimes's battery was in position, and in the line of fire from the enemy's battery replying to Grimes's, it was soon evident that the telephone could not be maintained there, so the line was recovered and the instrument located in the shelter of the bank of the Agudadores (San Juan) River, alongside the Sevilla-Santiago road, some 250 yards to the north of El Poso. The latter part of the work was performed under a smart shower of shrapnel, which continued more or less in the vicinity of the station all day. From the station orders were sent and received all day, and the line was carefully and constantly patrolled to guard against interruption.

On July 3 the line was extended to the foot of what is known as San Juan Hill, where were the headquarters of Generals Wheeler and Kent; thence to the headquarters of General Lawton, upon the right of the line of investment, and subsequently a branch line built from General Wheeler's to General Bates's headquarters, on the left of the line of investment.

It thus appears that throughout the critical period of the campaign the Signal Corps kept General Shafter in direct communication by telephone with his subordinate commanders, and that these lines were uninterruptedly maintained under fire and during the progress of battle.

The value of the Signal Corps in directing the fire of the Navy is shown by the following extract:

On July 7 I went to the mouth of the Aguadores River, found the telegraph line along the coast between that point and Siboney in good condition, and located and established a station about 1 mile east of the railroad bridge, in a position screened from the fire of the batteries and rifle pits upon the Spanish side, right bank of the river. Afterwards, during every bombardment of Santiago by the fleet, the plotting of the fall of the shots in the city were telephoned from the station near Loma San Juan to the commanding general, whose directions as to range and direction were in turn telephoned direct to Aguadores and flagged to the admiral.

As to later operations, Lieutenant-Colonel Greene says:

Capt. G. W. Butler, with the Eighth United States Volunteer Signal Corps, reported at Siboney on July 9, and his men were placed on duty at Aguadores, Daiquiri, Siboney, and the ammunition camp. From this time to July 17 the line was constantly maintained in working order over its entire length, comprising the line of investment with a line extending from the middle thereof through the corps headquarters and different supply camps to Siboney, the land line from Aguadores to Daiquiri, and in addition the French cable from Siboney to Playa del Este, which has been seized temporarily by the United States, all the operators being soldiers of the Signal Corps. Those at the front worked and lived in mud and took their share of all hardships and exposure to fire with the remainder of the Army.

Upon July 17, immediately after the occupation of Santiago de Cuba, the Spanish military telegraph line from Santiago was tapped at the junction of the Caney and Sevilla road and extended into corps headquarters and communication opened, and afterwards, as required, the different camps were connected by telephone.

Concerning this telegraphic and telephonic service, which did not fall within the plans of the major-general commanding the Fifth Army Corps and for which he made no provision, the Chief Signal Officer of the Army feels it incumbent upon him to point its absolute military necessity and value, and to indicate the extraordinary risk which any general commanding a detached army, especially one serving on a foreign soil, assumes when he leaves himself unprovided with telegraphic or telephonic facilities.

Through the volunteer work of the Signal Corps no failure occurred in telegraphic communication. On the one hand, the major-general commanding the Fifth Army Corps reached by telephone points on the right, center, and left of his line within 400 yards of the enemy, and communication with his subordinate commanders was not only possible at all times, but was continuously maintained, as these lines worked twenty-four hours in the day. On the other hand, the major-general commanding the Fifth Corps was able to communicate directly with the admiral commanding the fleet through the telephonic station near Aguadores. In addition, the War Department, with all its bureaus and the supply depots of a great nation, were within twenty minutes of the general commanding, so that any deficiencies of equipment could be asked for or reinforcements requested; and further, he was able to keep in touch with the President, the Secretary of War, and the Commanding General of the Army, so as to receive at critical moments such advice, encouragement, or assistance as might advance the interests of the campaign.

It may be insisted that, apart from the value and effect of potent words of inspiring confidence which passed from Washington over these wires in the gloomy hours of the siege, these lines were worth more to the nation in the single month of July than has been the cost of the Signal Corps of the Army from its inception in 1859 to the present day. No one can say how long our success would have been delayed at Santiago, with the Spanish fully equipped with telegraphic and telephonic communication, had the commanders of the American Army been unable to communicate with each other, with their supply depots, or with the coopera-

tive fleet, save by the medium of their few mounted men, when hours, instead of minutes, must have elapsed before important orders could be given or answered. In addition, it is not pleasant to surmise what might have been the fate of the fever-stricken army near Santiago de Cuba had its fortunes and movements been debated by mail instead of by electrical communication.

MILITARY BALLOONS.

The necessity of balloons for reconnoitering purposes, especially in a level or wooded country, is universally recognized by military experts. All efforts to obtain special appropriations for the use of the balloon section of the Signal Corps having failed in past years, the beginning of the war found the Signal Corps provided with only one balloon, manufactured by members of the corps by hand, for which the cheapest possible accessories had with difficulty been obtained from the limited appropriation of the Signal Corps.

After the war began, while inability to promptly obtain funds, conjoined to the fact that everything connected with a balloon has to be manufactured to order, made it necessary to confine active balloon operations to the material already on hand, yet balloons, generators, compressors, and steel tubes were ordered as soon as an allotment was made. These, however, did not reach Tampa until the expedition was aboard transports, and so were too late for the Santiago campaign.

The balloon work was intrusted to Lieut. Col. Joseph E. Maxfield, United States Volunteer Signal Corps, a captain in the Regular Corps, whose report forms Appendix 5, and it is to his energy, professional skill, and ability that the successful operation of the war Balloon at Santiago de Cuba is due.

Overcoming almost insuperable difficulties at Tampa, Fla., the balloon with its accessories, such as generator and reserve hydrogen gas compressed in steel tubes, were assembled and loaded on the transport *Rio Grande* in three days. When the Fifth Corps disembarked, June 22, the orders of the commanding general prohibited the balloon detachment from landing, and it remained on the transport until June 28, when it was ordered ashore. On June 27 urgent verbal orders were given by the commanding general of the Fifth Army Corps to Lieutenant-Colonel Greene that the balloon detachment should instantly land and proceed to the front for the purpose of making a balloon reconnaissance. Lieutenant-Colonel Maxfield immediately requested authority to land the gas generator with the necessary material for inflating the balloon, thus holding the compressed gas stored in the steel tubes for reserve. The commanding general refused, and operations began by drawing immediately on the reserve gas, whereby only one inflation of the balloon was possible instead of a dozen, which could have been had by following usual methods. The balloon detachment reached the headquarters of the commanding general at Siboney on the night of June 28, and it moved with these headquarters on the 29th. The lack of proper facilities for storage during the voyage and the extreme heat had impaired the balloon, which was an old one, and when fully spread it was in such condition that its use for ascensions in times of peace would have been considered unsafe. Temporary repairs were speedily completed and three ascensions made on the afternoon of June 30—the first by Lieutenant-Colonel Maxfield and Sergeant Ivy Baldwin of the Signal Corps, the second by Lieut. W. S. Volkmar, Signal Corps, and General Castilla, of the Cuban army, the third by Lieutenant-Colonel Maxfield and Chief Engineer Officer Derby of the Fifth Army Corps.

These ascensions resulted in an increased knowledge as to the direction and course of such roads and streams directly in front of the Army as had remained undiscovered during the previous week. Lieutenant-Colonel Maxfield says:

The fact that the Spanish fleet of Admiral Cervera was in the harbor of Santiago was at last definitely settled. It could not be determined, however, how strongly the fortifications in our front were held, nor could they be located except with the greatest difficulty. A most flattering verbal report as to the value of the balloon in war was made by the chief engineer officer to the commanding general, with the recommendation that it be employed during the battle for the next day.

That evening verbal orders were brought to Lieutenant-Colonel Maxfield by the chief engineer officer of the Fifth Army Corps from the commanding general to report with the balloon at as early an hour as practicable at El Poso, which was to be the headquarters of the commanding general during the battle, and that there he would find the chief engineer officer, who would accompany him in the ascents.

Reporting on the morning of July 2 at El Poso, Lieutenant-Colonel Maxfield says:

Upon reaching the summit of the hill none of the officers attached to headquarters were visible, and it was found that the hill was covered by a slow but remarkably accurate shrapnel fire from the enemy's guns. [Here his horse was shot under him. He continues:] The balloon was carried to a place in the river bottom about a quarter of a mile to the rear and an ascent made, Colonel Derby and myself occupying the basket. From this point a message was sent to the adjutant-general of the corps, setting forth the movement of the troops at El Caney and upon the road to our front which led to the hill of San Juan. Under orders from the chief engineer officer the balloon was then pulled down to within a few hundred feet of the ground, the occupants of the basket still remaining in it, and towed toward the front until a more suitable position for viewing the intrenchments at San Juan could be found. It was supposed that the balloon would be halted at El Poso and that point taken as a station for the balloon detachment, as had been originally intended. As this was not done, a statement was made by me as to the result of artillery firing at balloons in experimental work abroad and the conclusions to be drawn from such, and the fact stated that in my opinion it was unwise to carry the balloon farther to the front. No formal protest, however, was made, as it was felt that the chief engineer officer was the representative of the commanding general and that his desires were to be carried out. As a consequence, the balloon was carried rapidly to the front until it was immediately in the rear of the troops, who were then deploying for an attack upon the blockhouse and trenches on the San Juan Hill. As no further progress to the front could be made, the balloon was then carried across the bed of the San Juan River and into a large meadow just to the right of the road and the river. In passing through the trees and brush along the river banks the ropes holding the balloon captive became badly tangled in this brush, and no movement for a time was possible, nor, for the same reason, could the balloon be given the necessary elevation to enable it to do its best work. Nevertheless, from this point the fact was determined that the intrenchments on the San Juan Hill immediately in our front were strongly held, and a message to this effect sent to the commanding general, with the suggestion that the artillery upon the hill at El Poso should reopen its fire upon them. This was done. The attention of the occupants of the basket was given almost solely to an examination of the ground held by the enemy and that immediately in their front, and it was impossible for that reason to state what was the disposition of our own troops in the immediate vicinity, most of whom were hidden by the brush. It was noticed, however, that dismounted cavalry were deploying in the open meadow in which was the balloon, about 50 yards in front. It was at that time that the enemy opened fire. This fire appeared to be musketry only. In a very few moments it became apparent that the balloon had been struck, as there was a decided loss of gas, and the rope having not yet been cleared from the brush, I gave orders that the balloon should be pulled down, hoping to be able to disentangle it, carry it over to the rear, repair the holes in it, and replace the lost gas from the tubes which still remained full. This order was obeyed, and for twenty or thirty minutes the detachment was busy endeavoring to disentangle the captive cord and extend it along the bed of the river. During this work the detachment was exposed to a heavy musketry fire, from which they were fortunately well sheltered by the banks of the river, and, although the leaves often fell in showers from the bushes and trees overhanging the bank, but one man, Private Haywood, Signal Corps, United States Army, was struck. He received a wound in the foot. An examination of the balloon having shown several holes

in the upper portion and the loss of so much gas as to render the future use of it impossible, orders were given to secure it and to retreat along the river bottom. This was done.

A new balloon, meanwhile, had been shipped to Lieutenant-Colonel Maxfield, when he was informed by the commanding general of the Fifth Corps that no further work of the balloon detachment would be necessary during the campaign, and this officer returned with balloon gas tubes to Tampa to prepare for the Porto Rico campaign.

The operation of the Signal Corps balloon has been the subject of official comments that necessitate attention.

As to the utility of the balloon, Lieutenant-Colonel Maxfield states:

On July 1 at least two items of information of value were obtained by the use of the balloon. These were as follows: First, the fact that the intrenchments at or near the hill of San Juan were strongly held by the enemy. The obtaining of this information resulted in the opening of fire by the battery at the hill of El Poso earlier than would have otherwise been the case. Second, as shown in the official report of Brigadier-General Kent, commanding First Division, Fifth Army Corps, as quoted hereafter.

Brig. Gen. J. F. Kent, commanding First Division, in his report on July 7, 1898, says:

We were already suffering losses caused by the balloon near by attracting fire and disclosing our position. The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thicket on our flanks, but from sharpshooters thickly posted in trees in our rear and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby of General Shafter's staff met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment of Hawkins's brigade came up. I turned them into the bypath indicated by Lieutenant-Colonel Derby leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade.

Judging from his report on July 25, 1898, Major-General Breckenridge was not fully informed as to the object and management of the Signal Corps war balloon, and evidently was unaware of the valuable information obtained therefrom. He says:

A balloon was sent down with this army, but its practical value was not demonstrated. This is a difficult country in which to see moving troops or anything of that sort, even from a balloon, on account of the thickly wooded nature of the country. On the 1st of July the balloon accompanied a marching column and drew much of the fire from the Spanish position, and some casualties resulted from this fire among the troops coming along the same line as the balloon.

Under these circumstances it is necessary that the Chief Signal Officer shall state exactly the above facts, which demonstrate, first, that the balloon proved its utility; second, that the forcing of the Signal Corps balloon to the skirmish line, where its position is reported to have caused serious loss to the troops by disclosing their movements and attracting the enemy's fire, was the action of Major-General Shafter, through his chief engineer, Col. George McC. Derby, in the face of professional advice given him by Lieutenant-Colonel Maxfield of the United States Volunteer Signal Corps, who was charged with the practical operation of the balloon, and who, besides sharing absolutely every danger to which Colonel Derby was subjected, in addition had his horse shot under him in a previous reconnaissance of the grounds.

Whether the valuable information obtained in this ascent could have been obtained with the balloon at a safe range in the rear is not within the knowledge of the Chief Signal Officer, nor is it within his province to decide whether or not the information obtained was sufficiently valuable to compensate for the loss of life involved therein. It is sufficient

to call attention to the fact that the official reports above quoted fully demonstrate the utility of the balloon, and that, despite the unsuitable character of the balloon and its imperfect accessories, its operations were successfully conducted. That it was kept on shipboard unused for a week was not the fault of this Corps.

Although the excellent conduct of the Signal Corps on this occasion was not officially noticed in the official report of the commanding general of the Fifth Army Corps, the Chief Signal Officer calls attention to the fact that while the signal corps is not a part of the fighting force of an army, and the operations of the balloon detachment are supposed to be conducted without the range of the musketry fire, yet no man failed to do his duty under fire. In his report Lieutenant-Colonel Maxfield says on this point:

It is with pleasure and pride that I refer to the conduct of the small detachment under my command in the field. Second Lieut. James R. Steele, United States Volunteer Signal Corps (since dead), performed his duty in the same quiet, thorough, and faithful manner which has marked his entire previous career in the Signal Corps. Second Lieut. Walter S. Volkmar, United States Volunteer Signal Corps, proved himself to be an energetic and courageous young officer. The entire command bore itself well, not only under fire, but also during the days of hard work and privation which followed. To Sergt. John Kennedy, Signal Corps, United States Army, praise is due for display of courage and uniform cheerfulness which did not fail to have its effect upon the entire command.

The character of the outfitting work of the Corps is shown by the following extract from the report of Lieutenant-Colonel Maxfield:

In spite of the difficulties met with, however, it can be said that within five weeks after the declaration of war the Signal Corps was able to put a fully armed balloon train in the field, and that by the time the companies of the Volunteer Signal Corps had been organized and were ready for service another train was practically completed. At the time of the cessation of hostilities one set of equipment was at Santiago de Cuba, with all the necessary apparatus and material for making balloon ascension, although work could not have been done with it as rapidly as would have been the case had a fresh supply of tubes containing compressed gas been available. Another balloon section was at Tampa likewise fully equipped.

The Signal Corps failed to receive from Major-General Shafter in his original report even a notice that it participated in the Santiago campaign, and this Corps did not share in encomiums such as were bestowed by him on the other staff corps for their efficient service at Santiago. It is hoped that this resulted from the natural wish of the commanding general of the Fifth Corps to defend other departments from unwarranted criticisms leveled at them and not with the distinct purpose of discriminating against a Corps that has so far escaped adverse comment. It was certainly invidious to assign charge of this balloon, which pertains to the Signal Corps, to an engineer officer who, responsible for its destruction, is recommended for brevet for having ascended in the basket with the signal officer who was in charge of it, while the latter officer, naturally responsible for its safety and proper management, is excluded from praise or management. However, in his later indorsement on the official report of Lieutenant-Colonel Maxfield the commanding general of the Fifth Corps says:

The service rendered by the balloon detachment, as well as the whole of the Signal Corps, was satisfactory.

TELEGRAPH CENSORSHIP.

There has been a misapprehension on the part of many that the Signal Corps exercised a press censorship during the war, an opinion that is entirely unfounded, as the Chief Signal Officer ignored all suggestions looking to interference with the free and untrammelled publication of press matter, even by the most sensational and unpatriotic

of journals. It may be added that the Associated Press, the Sun Press Association, and many of the leading journals, in a most patriotic spirit, expressed freely and frequently not only their willingness, but also their desire to refrain from the publication of any information that would embarrass the Administration or be detrimental to the success of military operations. These offers were not Pickwickian, for in more than one instance information of the highest interest to the public has never been published to this day, being held secret by press associations, newspaper correspondents, and editors, as calculated, if given publicity, to injure the national cause.

What the Chief Signal Officer of the Army really exercised was a censorship of all matter which passed over such telegraph cables and land lines as were militarily occupied by the Signal Corps in accordance with instructions from higher authority. The lines also occupied were the land lines of Florida, every cable (six separate systems) extending from the United States to any foreign country, the French cable on the south coast of Cuba, and the English cables in Porto Rico and Santiago, and the Cuba submarine cables at Santiago de Cuba. Most of these telegraph lines were only constructively seized, the Chief Signal Officer taking the responsibility, which he believes to have been the most effective method, of intrusting the direct censorship of messages, under the general supervision of an officer of the Signal Corps, to the respective superintendents, men of high character, whose good faith was guaranteed by the companies whose interests they likewise guarded. The interests of the United States were thus subserved while the privacy of the affairs of the companies was conserved.

The response of the several telegraph and cable companies to the demands of the United States, through the Chief Signal Officer, was gratifying in the extreme. The Western Union Telegraph Company suffered the most financially, owing to the almost total destruction of its West Indies traffic over the Key West-Havana cables, yet through its president, Gen. Thomas T. Eckert, whose effective patriotism during the civil war is part of the history of the country, it placed on all occasions the counsel, skill, and aid of the company's agents everywhere at the free disposal of the Government when needed. Mr. James A. Scrymser, president of the Mexican Telegraph Company, contributed his own great professional knowledge and the active cooperation of his company in many ways to the benefit of the nation. The Commercial or Postal Telegraph Company, by its president, John W. Mackey, pledged itself to full and patriotic action in harmony with the wishes of the United States. The United States and Haiti Cable Company accepted with the best of feeling the strict supervision that was necessarily exercised over its cable between New York and Haiti, and its officers placed at the service of the Government its most reliable and experienced operators. The French Telegraphic Cables Company, through M. Louis A. Lurienne, gave the strongest possible evidence of loyal and faithful compliance with the requirements of the United States, acceptable evidences that the hospitality shown by the Government to this company was appreciated. During the critical period in Cuba this company strove to fulfill its obligations as a neutral corporation, although most trying and difficult conditions obtained with a Spanish military censor at its office in Santiago and an American military censor at Playa del Este. The Direct Cable Company, Mr. James Brown superintendent, and the Anglo-American Cable Company, Mr. Charles Trippe superintendent, both accepted the situation with a spirit of good will to the United States and of straightforward conduct and earnest effort to carry out the censor's orders that were none the less gratifying that they came

in obedience to instructions from "our kin across the sea." The West India and Panama Telegraph Company (an English corporation) and the Cuba Submarine Company were necessarily committed to Spanish interests, owing to their franchises and subsidies from Spain, but they accepted with good faith and in proper spirit military control coincident with the American occupation of Cuba and Porto Rico.

The authority under which the Chief Signal Officer exercised censorship rests on that proviso of law which vests in the Chief Signal Officer of the Army the control and operation of military telegraph lines, and as soon as these cables and lines were militarily occupied by the United States, it fell within his province to fix the order of business and to decline such messages as were prejudicial to the military interests of the United States.

As correspondence with Spain and her colonies was discontinued by mail, so also was correspondence by telegrams, except such as fell within diplomatic privileges. Cipher dispatches by wire were also forbidden to and from any part of the West Indies, as otherwise information injurious to the United States would have been possible. Personal and commercial messages in plain text were permitted unless they contained injurious information, such as military or naval operations contemplated or then progressing. The policy followed looked to the least possible interference with domestic or commercial affairs. It thus occurred that messages passed freely over occupied lines, even in and out of Havana or, at times, of Santiago.

The Chief Signal Officer was not oblivious of the fact that secret information could be sent in plain text by concerted code, but it is to be said that while such messages were frequently accepted, it was often the case that they went quietly into the waste basket and not over the wires to the proposed destination. On the other hand the Chief Signal Officer appreciated fully the advantages to be derived from careful examination of the thousands of messages of unfriendly or neutral character that passed through the hands of his subordinates. From newspaper correspondents, blockade runners, Spanish agents, commercial messages, personal dispatches, etc., there was reaped a rich harvest of information. It would be boastfulness to say that these sources of information were fully exploited by the Signal Corps, but it is unquestioned that much was learned that proved of inestimable value to the United States. Col. James Allen, Lieut. Col. Joseph E. Maxfield, and Lieut. Grant Squires, in their capacity and service as telegraph censors, gained in order named the most valuable information. The intelligence and ability of these officers were applied with such persistent zeal in the performance of their duties that they rendered service of the greatest possible value to the Government.

The operations of American fleets in Cuban waters, the success and plans of blockade runners, the presence and activity of Spanish agents, the movements of Spanish ships were among various matters concerning which information reached the proper authorities through the Chief Signal Officer of the Army, not only hours, but even days, in advance of information through the ever active and almost ever-present correspondent, and in some instances the information gained was solely by the exertion of the Signal Corps.

The most striking illustration of the value of information thus gathered is the fact that out of the Signal Corps cipher messages that reported the arrival of Admiral Cervera's fleet in Santiago Harbor flowed the conception of the Santiago campaign, the turning point of the war. There have been so many incorrect reports regarding the locating of *Admiral Cervera in Santiago Harbor*, and of his being blockaded or

"bottled up" therein, that in the interest of history, let alone justice to the Signal Corps of the Army, the truth should be told. The location of Cervera's squadron at Santiago was first made by Col. James Allen, and later verified independently by Lieut. Col. Joseph E. Maxfield, both officers of the Signal Corps. The blockading of Cervera's squadron was due to the concerted action of the President and Secretary of the Navy, based on reports and representations made personally to them by the Chief Signal Officer of the Army. Secretary Long, alive to the situation, in an official dispatch, says: "All military and naval movements depended upon that point (the presence of Cervera in Santiago Harbor)."

On May 19, Admiral Cervera entered the harbor of Santiago with his squadron. That very day Colonel Allen telegraphed in cipher to the Chief Signal Officer: "Five Spanish vessels arrived at Santiago de Cuba. Have notified admiral commanding (Sampson). The Spanish flagship arrived Santiago de Cuba. The admiral (Cervera) hastily wired Madrid." On the following morning he added the following information: "Palayo and four cruisers in Santiago. No destroyers or torpedo boats arrived there." This information was communicated immediately to the President and by his orders to the Secretary of the Navy, who, being impressed by the assurance of the Chief Signal Officer of the Army as to the entire reliability of this report, proved himself equal to the emergency and on that very day gave such prompt and effective orders as resulted in the blockade of Santiago and the ultimate destruction of Cervera's fleet.

Colonel Allen furnished almost daily cipher reports from Santiago sources. On the 23d he reported that the Spanish squadron was short of coal and could not renew its supply at Santiago. His later information, that unarmored American cruisers passing up and down the coast were mistaken by the Spanish for the main American fleet, proves the wisdom and efficacy of Admiral Sampson's orders by cable that the fast unarmored cruisers of the Navy should perform scouting duty off Santiago. Cipher messages of the 23d stated correctly that Admiral Schley was that day at Cienfuegos and Cervera was at Santiago. Meanwhile the Navy had been unable to verify the fact of Cervera's presence at Santiago, and as a result the correctness of the information furnished by the Signal Corps was sharply questioned. The Chief Signal Officer, being informed that the whole campaign was being conducted upon his representations, was asked to verify this information from other sources, if possible. Prompt action was taken by the Chief Signal Officer, who adopted such lines of operations that thereafter there was scarcely a day that he was not in possession of information of some kind or other coming over one or more of the six cables leading out of Santiago. Lieutenant Colonel Maxfield, then in charge of the telegraphic censorship in New York, carried out special injunctions of the Chief Signal Officer so successfully that he was able in twenty-four hours to confirm from separate and absolutely certain source the fact that Cervera was still in Santiago. This confirmation, received from Lieutenant Colonel Maxfield, greatly lightened the burden of responsibility borne by the Chief Signal Officer, which, however, did not fully disappear until the tenth day after the entrance of Cervera's squadron in Santiago, when his presence was first confirmed from naval sources.

It is an interesting anticlimax that when Cervera's squadron was destroyed on July 3, Colonel Allen, the same officer who originally reported the arrival of the fleet on the very day it reached Santiago, likewise reported by telegraph to the Chief Signal Officer the fact that

the entire fleet had been destroyed, which information was conveyed to the President and country fourteen hours in advance of any other official advice.

Various conflicting reports were made during the war as to telegraphic isolation of Cuba. The Chief Signal Officer was kept daily advised of the situation, and, in fact, Captain-General Blanco was never unable to communicate over friendly lines with the Spanish Government at Madrid except during two days, when the cable operators left Santiago. The reentry of these operators, by permission of General Shafter, restored Generals Toral and Blanco to the telegraphic facilities they previously enjoyed over one cable, which could not be located, and which, save for two days, was operated throughout the war between Santiago de Cuba and Kingston, Jamaica.

In connection with the duties of telegraph censor, the Chief Signal Officer was struck with the patient patriotism displayed almost universally by business men of the country, whose operations abroad were necessarily conducted under conditions of increased cost and impaired secrecy. Whatever sacrifices the Government asked, almost to a man they were ready to make, and their general action sets in strong relief the conduct of the very few for whom the war seemed only an opportunity to decry their own or to turn all to gain.

The report, Appendix 6, of Lieut. Grant Squires furnishes details as to the telegraphic censorship at New York, the real center of telegraphic information.

THE PORTO RICAN CAMPAIGN.

The general charge of the Signal Corps work of this campaign devolved on Col. James Allen, United States Volunteer Signal Corps, who was serving on the staff of Maj. Gen. Nelson A. Miles, Commander of the Army of the United States. The Signal Corps men operating therein consisted of six organizations, Fourth, Fifth, Seventh, and Ninth Volunteer Signal Corps companies and companies A and D of the regular force. Of these, three served under Lieut. Col. W. A. Glassford, chief signal officer, First Army Corps, and three under Lieut. Col. Samuel Reber, attached to the Headquarters of the Army.

Colonel Allen's general report and the detailed report of Lieutenant-Colonel Reber furnish information in full as to the operations of the Signal Corps in the Porto Rican campaign.

Lieutenant-Colonel Reber's command on the *Stillwater* entered the harbor of Guanica, where the U. S. S. *Gloucester* had just cleared the shore. Establishing communication with the beach, he pushed forward his advance outposts, and hereafter that portion of the army was in constant communication with the Headquarters of the Army, to which all movements of troops were communicated and from which all orders and instructions were given over the lines of the Signal Corps. An advance line was run from the beach to the suburbs of Guanica the first day, and as the outposts moved toward Yauco July 28 the line was extended to that point. Under orders of Major-General Miles of that date to build telegraph lines from Yauco and open communication with Ponce, Lieutenant-Colonel Reber commenced operations with the flying telegraph train, and pushing on to Yauco with twenty men of the Sixth Massachusetts Volunteers reconnoitered the route and occupied the town on July 28. At Yauco it was discovered that the telegraph instruments and appliances had been destroyed by the enemy, but utilizing such portions of the Porto Rican lines as were standing and filling the gaps from the Signal Corps material communication was opened to Ponce on July 29.

The Fifth Signal Corps company landed on July 28 at the Playa de Ponce, occupied the telegraph office at Ponce that afternoon, and ran a line to the railroad station, while the Ninth company was disembarked the same day and took possession of the Spanish office at Playa and put the line in good order to the telegraph office in Ponce.

Upon the occupation of Ponce, Colonel Allen proceeded to St. Thomas, where satisfactory arrangements were made with Mr. Ross, superintendent of the West India and Panama Cable Company, for operators and instruments, whereby cable communication could be had with the United States via St. Thomas and Jamaica, or via St. Thomas and Martinique. As a result of Colonel Allen's efforts, and through the courtesy of Mr. Henry B. Chamberlain of the Chicago Record, cable employees were landed at Ponce on July 31 and communication established with Santa Cruz. Although the operations of the Signal Corps looked to field work, and so contemplated only the construction of flying telegraph and telephone lines, yet the ingenuity of its officers and men enabled it to put in prompt repair the permanent telegraph lines which had been abandoned by the enemy after destroying the instruments, batteries, and repair material.

The extension of lines along General Brooke's march from Guayama was under the personal direction of Lieut. Col. W. A. Glassford with the Fourth and Seventh Volunteer companies and Company A of the Regulars. Communication to the westward to Ponce was made over the repaired Spanish telegraph line from Guayama. As General Brooke's corps advanced, Colonel Glassford's skill and energy insured uninterrupted telegraph communication from Ponce via Guayama and Arroya to the outposts of the First Army Corps.

The extensive system of lines centering at Ponce was under charge of Lieut. Col. Samuel Reber, who was assigned the task of keeping up communication with General Wilson's command to the Fifth company, Capt. W. H. Lamar. The Ninth company had divided duties, Lieutenant Davenport being in charge of the central office, while Lieutenant Woodard skillfully maintained communication with General Henry's command as it advanced via Adjuntas to Utuado.

Later Capt. C. C. Clark, with Company D of Regulars, displayed great energy in opening up, after the peace protocol was signed, telegraphic communication from Ponce via Mayaguez with General Schwan's command, with which it was at first deemed unnecessary to establish telegraphic communication. A pleasing example of the versatility of the American soldier was the action of Lieutenant-Colonel Reber in replacing destroyed instruments. Visiting a workshop, he personally made out of a brass sugar kettle a switch board that, save under close inspection, seems to be of standard manufacture, and through it were sent thousands of messages from army headquarters. The ability, zeal, and resourcefulness of Lieutenant Colonel Reber insured a rapidity of action and efficiency of service that were highly creditable to that officer and the Signal Corps.

The extent and character of the work done by the Signal Corps under the direction of Col. James Allen, United States Volunteer Signal Corps, who had general charge of all Signal Corps operations, may be considered as a typical instance of the methods by which the Signal Corps operations of a great army should be conducted. The results obtained in Porto Rico, whether considered from an administrative standpoint or from a strategetical point of view emphasize the indispensability of electrical communications in any serious campaign. Colonel Allen in this work added to the laurels he had already gained by his extraordinarily efficient service on the south coast of Cuba. The extent of this

work may be estimated from the fact that over the wires at Ponce office alone there were sent and received no less than 4,613 messages, within twenty-one days after the occupation of the city.

At Ponce was established the headquarters of the military telegraph system, which reached the cable of the West India and Panama Cable Company by a loop to the cable box at Playa de Ponce and Guanica to the west by a branch line. To the westward General Schwan's headquarters were reached through offices at Yauco, Subana Grande, San German, Cabo Rojo, and Mayaguez; to the northwestward General Henry's command by offices at Adjuntas and Utuado; to the northeast General Wilson's command by offices at Juana Diaz, Coamo, and at the outposts in front of Aibonito; to the eastward General Brooke's command by offices at Guayama, Arroya, and at his outposts. The whole system aggregated about 170 miles and covered nearly one-half the territory of Porto Rico.

The efficiency of the system is shown by the speedy manner in which the general message regarding the peace protocol was handled by Lieutenant Davenport, whose work as manager in charge of the line at Ponce was admirably done. The cablegram was received August 13 at 10.34 a. m. in the main office and reached army headquarters at Ponce at 10.37 a. m. The orders of Major-General Miles, commanding the Army, to Generals Brooke, Henry, and Wilson, directing suspension of hostilities were written, filed, and delivered to them by 11.10 a. m., just in time to prevent a renewal of active hostilities. The message to General Schwan was necessarily sent by a courier from Yauco, reaching him at daylight on the morning of the 14th at a point 20 miles northwest of Mayaguez.

The officers and men of the Signal Corps in this campaign were alert to secure valuable information, which was promptly transmitted to the commanding generals, and they acted as scouts. Lieutenant-Colonel Reber in this way occupied Yauco, and Captain Lamar, with General Stone pushed on to Utuado, about 15 miles from the north coast. In establishing advance telephone stations at outposts the Signal Corps kept pace with skirmishers and performed this important duty under fire of the enemy.

PERMANENT MILITARY TELEGRAPH LINES.

Situated almost entirely along the Mexican frontier or running to the heart of the great Indian reservations, the permanent military telegraph lines of the United States aggregate about 900 miles in length (Appendix 7). They have been regularly operated almost without interruption, despite the fact that they were stripped of Signal Corps sergeants at the commencement of the war. They were then, however, in the best possible order, through the activity of the Signal Corps, so that their temporary transfer to a force largely civilian has not resulted in material impairment of service, although they have suffered deterioration. The expense of their maintenance has been largely increased, owing to the necessary replacement of signal sergeants by civilian operators. A general overhauling of the lines has been impossible except at great expense, but will be undertaken on the return of military garrisons and signal men to various posts. The charge of these lines has devolved upon the following departmental signal officers, whose duties have necessarily kept them from active campaigning, but nevertheless the manner in which they have performed their work is deserving of special commendation from the Chief Signal Officer of the Army, who mentions in this connection the names of Capt. Eugene T. Wilson, United

States Volunteer Signal Corps, Department of California; Second Lieut. Edward L. King, Eighth United States Cavalry, Department of the Colorado; Capt. Frank L. Dodds, acting judge-advocate, Department of the Gulf; Second Lieut. Walter L. Clarke, United States Volunteer Signal Corps, Department of the East.

FLYING TELEGRAPH LINES.

The temporary occupation as camps of certain points by the volunteer forces of the United States necessitated the construction, maintenance, and operation of telegraph and telephone lines for purposes of administration. These were almost invariably flying telegraph lines, constructed according to plans in vogue for drill purposes in times of peace, though in most instances telephones have replaced telegraph instruments. These lines are usually of No. 14 galvanized-steel wire, suspended by 16-foot lances, to which the wires are hung by detachable india-rubber insulators.

At each separate camp, whether brigade, division, or corps, there has been erected an independent system of either or both telegraph or telephone lines (as shown by Appendix 8). The main office was located near the headquarters of the camp and afforded direct communication with headquarters of the subordinate commanders, the hospital, the commissary depot, the quartermaster stores, etc., and such other points as in the opinion of the commanding general were thought necessary for the prompt and successful administration of his command. In addition, direct communication was made with the adjacent commercial systems, whether telegraph office or telephone exchange.

It is admitted that it would have been impossible for the great camps of the country to have been properly administered without such electrical means of communication. This was especially true of camps such as Alger, George H. Thomas (Chickamauga Park), and Wikoff (Montauk Point, N. Y.), where the area covered by the troops amounted to 20 square miles or more. Similar telegraphic and telephonic facilities have been arranged for the great military hospitals whenever desired by the Surgeon-General.

Among the officers of the United States Volunteer Signal Corps who have particularly distinguished themselves in the installation of electrical systems in the great camps there are to be specially mentioned for their ability, energy, and zeal: Lieut. Col. Richard P. Strong, at Camp Alger, Va.; Lieut. Col. W. A. Glassford, Camp George H. Thomas; Lieut. Col. George O. Squier, Camp George H. Thomas; Capt. A. Higgins, Camp Wikoff; Capt. Frederick T. Leigh, Camp George H. Thomas; Capt. Howard A. Giddings, Camp Cuba Libre; Capt. Carl F. Hartmann, Camps Alger and George G. Meade; Capt. Frank E. Lyman, jr., Camp Hamilton; Capt. Samuel S. Sample, Camp Shipp; Lieut. Alvar G. Thompson, Camp Poland; Lieut. Henry G. Opdycke, at Fort Monroe.

The extent of these lines and the importance of the business done may be gathered from the mere statement of facts that flying lines built for this purpose within the limits of the United States exceeded 250 miles in length, and that the messages received and transmitted over them aggregated hundreds of thousands in numbers.

The rapidity with which these lines were constructed, the efficiency with which they have been maintained and operated, and the successful manner in which they have been recovered for future use have elicited commendation and praise from the various commanders whose administrative purposes they have subserved. No complaint, either official or unofficial, has reached the Signal Office that has reflected in the least degree upon the operations of these lines, which, it is evident,

are absolutely indispensable for administrative purposes in great camps and for strategical purposes during active campaigning.

The flying telegraph system, as devised and perfected by the Signal Corps, has stood the test of extended experience under diverse conditions both in these great camps and also under conditions of foreign campaigning, and it may be safely said that this system has developed no defects in time of war. It may, therefore, be accepted as a standard equipment, capable of rendering any communication service that the exigencies of war may demand.

It should be added that the successful installation and operation of these lines has been almost entirely due to the high degree of professional skill, patriotic zeal, and faithful attention to duty that has marked the service of officers and men of the United States Volunteer Signal Corps who have been charged therewith. The routine labor of garrison and camp are monotonous and fatiguing, but they have been fulfilled with the same fidelity to duty under these trying conditions as had characterized the work of their companions in arms who have been called to more active and inspiring service in the face of the enemy.

TELEGRAPH LINES OF CUBA AND PORTO RICO.

Immediately after the surrender of Santiago the Chief Signal Officer of the Army found that the labors of his corps were largely increased instead of diminished, and that it was necessary to increase the number of Signal Corps men in the new department of Santiago. This condition of affairs resulted from the fact that the telegraph lines of the western section of Cuba, as indeed for almost practically the entire island, were the property of Spain. These lines, partly owing to the disturbed conditions of Cuba during the past ten years and partly from late military operations, were in such condition as to be practically useless. Whatever may be the ultimate policy of the United States concerning these telegraph systems, there was an urgent necessity for putting them in good condition, at least as far as they were required for military purposes. The Signal Corps of the Army is therefore repairing and operating such lines as Major-General Lawton, commanding the Department of Santiago, deems necessary for the purpose of military administration. Steps are being taken to secure a definite report as to the present condition, urgent necessity, and prospective utility of these lines, and a similar course will be followed regarding the lines in the eastern end of Cuba whenever it shall be occupied by the military forces of the United States. In any event it is certain that between 200 and 300 men of the Signal Corps will be necessary for the care and operation of Cuban lines needed for military administration. Since the creation of the Department of Santiago the care of these lines has devolved upon Capt. Jasper E. Brady, jr., United States Volunteer Signal Corps, whose professional skill and energy are rapidly placing the lines in this department in proper working order.

In Porto Rico practically the same conditions obtain. The telegraph and telephone lines were the property of Spain, but have now become the property of the United States. The telegraphic system of this island is shown by the map forming a part of the report of Lieut. Col. Samuel Reber, of the Signal Corps.

Major-General Brooke, commanding the military forces in Porto Rico, appreciates the importance of the efficient and successful administration of these lines. Realizing that the possibility of governing this island with a small military force is greatly facilitated by, if not dependent on, prompt and reliable telegraphic communication, General

Brooke has officially reported that 100 men of the Signal Corps are necessary for the permanent garrisoning of the island, that is, that one out of fifty men of his command should be an electrician or a telegraph operator. Since the creation of Porto Rico into a department the charge of the telegraph lines has devolved upon Lieut. Col. William A. Glassford, United States Volunteer Signal Corps, whose long experience, professional skill, and great energy are confidently relied upon to administer these lines in the most efficient manner. Needful repairs are being made, and the lines are gradually resuming commercial business, and will be fully restored when the evacuation of the island of Porto Rico is completed.

CABLE TO PORTO RICO.

The transfer of Porto Rico to the sovereignty of the United States makes the subject of telegraphic connection between that island and this country one of unusual interest and importance.

At present the island is only reached over the cables of the West Indies and Panama Cable Company, an English corporation, which has certain concessionary rights. It certainly seems to be a matter of national import to secure direct communication between Porto Rico and the United States by a cable operated by an American corporation, or by the Government of the United States. At present the whole system of telegraph lines in Porto Rico is operated by the Signal Corps, the lines having become the property of the United States from the fact that they were owned and operated by Spain at the time of the military occupation of the island. Similar conditions obtain in Cuba, where the Spanish Government telegraphic system is gradually passing into the hands of the Signal Corps of the Army, in trust, for future disposition.

Inasmuch as the relations of Cuba and Porto Rico must become more and more intimate and important, it is recommended that the United States system of land lines in these two islands be connected by a deep-sea cable from Mayaguez, in Porto Rico, to Santiago, Cuba. This would connect the Cuban and Porto Rican systems. From Santiago, Havana will be ultimately reached by lines operated by the Signal Corps, and from Havana two American cables extend to the coast of Florida. By this means all communications between Porto Rico and the United States would pass over strictly American lines.

It is estimated that the cost of the cable between the points named, and the repair of connecting land lines, would not exceed \$600,000, and it is recommended that action be taken to perfect a telegraphic system as above outlined.

EXPERIMENTAL WORK.

The policy pursued in the past by the Chief Signal Officer in experimental work along lines of prospective value to the Signal Corps of the Army has naturally been interrupted by the war. Nevertheless, it has progressed as far as existing conditions have permitted.

Col. James Allen has devoted much attention to the system of wireless telegraphy with a view to the adoption by the Signal Corps of a suitable system whenever the progress of the invention and the conditions of the military service shall warrant such action.

Lieut. Col. George O. Squier, with the efficient cooperation of Prof. A. C. Crehore, has pursued, under the direction of the Chief Signal Officer of the Army, his investigation regarding the most effective

manner of transmitting and receiving telegraphic messages. The discoveries made by these brilliant young physicists have reached a point where their utility and importance appear practically assured, and it is believed that their discoveries and inventions will be of great value to the commercial world, and incidentally to the Army. A summary of their experiments and observations form a part of this report.

The Department is under obligations to the Commercial Cable Company for the unusual facilities that it afforded Professor Crehore and Lieutenant-Colonel Squier for experimental work with the sine wave system of cable transmission. This company not only placed its cable between New York and Canso at the disposition of these physicists, but the officials of the company offered every courtesy, attention, and assistance that was possible, especially Mr. George Clapperton, Mr. Charles Cuttriss, and Mr. S. S. Dickenson.

REDUCTION OF VOLUNTEER FORCE.

As the Volunteer Army has been gradually reduced since the signing of the peace protocol, similar changes have taken place in the Volunteer Signal Corps. The extended and important duties imposed upon the corps by the peculiar conditions in Cuba and Porto Rico and the institution of a considerable number of camps within the limits of the United States, have, however, prevented a corresponding reduction in the Volunteer Signal Corps as compared to that of the Army as a whole. Six companies have been furloughed with the view to the muster out of the men and the honorable discharge of the officers. These are the Fifth, Seventh, Eighth, Ninth, and Fourteenth companies. As far as practicable, the reduction of the Signal Corps has been made from companies wherein a majority of the men desired to leave the service and return to their civil duties. The able, faithful, and zealous manner in which the officers and men of the Signal Corps have performed their duties, whether in the great camps within the limits of the United States, at the siege of Santiago, the capture of Manila, or in the occupation of Porto Rico, have been such as to merit the highest commendation and praise. As a recognition of this service, the Chief Signal Officer issued on September 13, 1898, the date of the earliest order of the muster out of a company, a general order which recited briefly the extent and character of their services during the war. This order forms an appendix (No. 9) to this report.

Attention is especially called to the health record of this corps, which up to the date of the above order for muster out, lost by disease in camp and field only 5, officers and men included, out of a total aggregate of 1,300 men.

OFFICE OF THE CHIEF SIGNAL OFFICER.

The unfortunate illness of Maj. (now Lieut. Col.) Robert Craig, Signal Corps, arising largely from overexertion in the line of his duties, left the Chief Signal Officer of the Army at the beginning of the war without any assistant, and these arduous duties, except the signing of checks, devolved on the Chief Signal Officer until the beginning of June, when Maj. Eugene O. Fechét, United States Volunteer Signal Corps, was appointed disbursing officer of the corps and Capt. Otto A. Nesmith, United States Volunteer Signal Corps, was assigned as Assistant to the Chief Signal Officer. The reports of Major Fechét (Appendix 10) and of Captain Nesmith (Appendix 11) give briefly an account of the work of this office which has been of an overwhelming character. The working force was suddenly reduced to one experienced clerk, sup-

plemented by temporary appointments necessarily unskilled. The officers worked sometimes eighteen hours daily, Sundays included, and in addition to their ordinary desk duties were obliged to train inexperienced employees. Simultaneous with war conditions thousands of letters flooded the office.

The Chief Signal Officer has pointed out repeatedly in past years the fact that this office was undermanned, but his efforts to obtain proper clerical force have been unavailing. There was but one civilian clerk for the important duties of the disbursing and property officer prior to the beginning of hostilities, and it was necessary for the labors of this clerk to be supplemented by details of sergeants of the Signal Corps, a most objectionable line of action, but which was absolutely necessary.

The resignation, for the purpose of military service, of two clerks of the office left the disbursing officer without any skilled clerk, and the labors of his office, at all times arduous, became almost impossible. In order to handle the largely increased amount of work connected with the purchasing and forwarding of signal supplies to commands in the field, it was necessary from time to time to increase the clerical force by three temporary clerks, a number inadequate to do the work, which has consequently fallen in arrears for the first time in the history of the office. While most of the clerks appointed were willing, yet they were unfamiliar with the duties required of them, and frequent changes have proved injurious to the public interest. The necessity of a proper permanent force for the discharge of public business is obvious, and Congress should also provide a suitable clerical force for the general depot of signal supplies, for which the proper number of clerks and laborers will be asked for in the estimate for the coming year. It should be pointed out that the work of the disbursing officer, as indeed of the Chief Signal Officer and his other assistants, has been done under conditions which, to use plain English, have been discreditable to the Government. Despite repeated applications there has been no increase in the number of rooms. Not only has the Chief Signal Officer been unable during the whole war to transact any strictly confidential business in his office, owing to the necessary presence of another officer and clerks therein, but also, in addition, the other officers and clerks of the office have been crowded into three rooms, lighted by one widow each, where it has been impossible to transact public business for a portion of each day save by artificial light. For many consecutive days the temperature was 100 degrees in these crowded rooms, the unsanitary conditions of which were such as to affect injuriously the physical health of the clerks and to impair their mental efforts. Despite these unsanitary conditions and the attendant great physical discomforts the clerks as a rule have most faithfully performed their exacting duties. The hours of labor in the Signal Office during the war ran from nine to ten hours daily, Sundays included, and at times reached twelve hours per day. It should be said to the credit of these clerks that no expression of dissatisfaction has ever reached the ears of the Chief Signal Officer, and they have shown almost invariably a patriotic devotion to duty that is worthy of the highest praise.

The parsimonious policy that reduced the appropriation of the Signal Corps from \$22,000 to \$18,000 a few years ago necessarily left the Signal Corps badly provided for war operations. It was necessary to provide a large army with all the appliances for the most advanced methods of electrical and visual signaling, as well as provide for the electrical installation of the fire-control system of all the artillery forts of the country. As far as possible articles were bought on short-time bids of from three to five days, but whenever a necessity arose the

Chief Signal Officer went into open market and purchased without the formality of bids. This course, it should be said, has only been followed when time was a more important factor than money.

While it is not usual to note in an annual report the relations of the different bureaus of the War Department, yet, under the circumstances, considering the importance of the relations of the Chief Signal Officer to the Adjutant-General and the Quartermaster-General, it is but justice to record the harmony that has existed with and the valuable cooperation that has been received from these departments. To the Adjutant-General of the Army, Brig. Gen. Henry O. Corbin, is especially due an acknowledgment of valuable services rendered by him, which have contributed to the successful operations of the Signal Corps. Whether day or night, General Corbin never failed to fully and promptly meet the most exacting demands of the Chief Signal Officer of the Army when made in the public interests.

Brig. Gen. Marshall I. Ludington, the Quartermaster-General of the Army, has never failed to promptly and favorably act whenever special facilities have been needed by the Signal Corps. It should be further added that Brig. Gen. John M. Wilson, Chief of Engineers, has also extended valuable aid, both personally and through the officers of the Corps of Engineers, especially in connection with Signal Corps cables in the great harbors.

Thanks are due to Maj. Hugh G. Brown, United States Infantry, temporarily on duty with the corps, for the valuable assistance rendered, especially in connection with matters pertaining to field work.

The services of Capt. Otto A. Nesmith, United States Volunteer Signal Corps, Principal Assistant, have been simply indispensable to the successful conduct of the office. His knowledge of War Department methods, his tact, courtesy, and industry were most valuable adjuncts at such critical times.

Maj. Eugene O. Fechét, United States Volunteer Signal Corps, brought to his duties as disbursing officer of the Signal Corps a knowledge of practical business methods which were doubly important through his appreciation of the importance of time and accomplishment of the desired end in the most direct and efficient manner.

Capt. Daniel J. Carr, United States Volunteer Signal Corps, was most valuable from his technical knowledge of electrical matters at a time of large purchases and new installations.

The chief clerk, Mr. George A. Warren, has performed his duties with the zeal, industry, and intelligence that have marked his services for many years, and it is hoped that the reorganization of the office will permit him to receive a salary commensurate with his ability and application.

APPROPRIATIONS.

The Signal Corps commenced its war operations with a fund of \$800, which was supplemented by allotments from the national war defense fund and by deficiency appropriations of Congress, so that the total amount available for the eighteen months ending December 31, 1898, aggregated \$609,000. The report of the disbursing officer shows the chief items of war expenditures, of which the most important in connection therewith are the cable, telegraph, and telephone lines and instruments, aggregating, in round numbers, a quarter of a million dollars.

ESTIMATES.

The estimates for the fiscal year ending June 30, 1900, aggregate \$47,500, and are based upon the assumption that the Regular Army

will hereafter consist of 75,000 men. Should the number be greater or less the estimates can be proportionately increased or decreased.

REGULAR SIGNAL CORPS.

The reorganization and enlargement of the Signal Corps of the Army is a matter of great importance, and the within recommendations are based on the supposition that the Regular Army will hereafter consist of a force of 75,000 men and that the outlying portions of the United States—Porto Rico, Hawaii, and at least the city of Manila—will be garrisoned.

The regular corps now consists of 10 officers, 10 first-class sergeants, and 40 sergeants. It is recommended that there be added to the Signal Corps 1 colonel, 1 lieutenant-colonel, 2 majors (one to be a disbursing officer out of the line of promotion), 5 captains, 9 first lieutenants, 40 first-class sergeants, 60 sergeants, 50 corporals, 250 first-class privates, and 50 second-class privates.

This makes an increase of 18 officers and 450 enlisted men; but, on the other hand, it relieves from military signaling duty, and thus enables them to devote the time to other duties, 1 officer and 4 enlisted men from each company throughout the Army, or an aggregate of about 400 officers and 1,600 men—a most cumbersome and inefficient system, which absolutely broke down during this war, as it has during all Indian campaigns and troubles in past years.

It is further recommended that the vacancies shall be filled from officers who have served in the United States Volunteer Signal Corps during the present war; and that no officer shall be appointed until he shall have been previously approved as to his moral, mental, and physical fitness by a board of Signal Corps officers convened for that purpose and its proceedings are approved by the Secretary of War.

The efficiency of the Signal Corps in the war has been due to the high professional standing of the officers of the regular corps, who have all, without exception, attained their commissions by competitive examination after having served in the Regular Army. The high standing of the corps in future can only be preserved by a similar policy, which should insure in any future war, as it has in this, the successful operation of the corps. In the present war the captains and lieutenants were promoted to the higher grades in the United States Volunteer Signal Corps, while 14 of the trained first-class sergeants, proficient in their duties and experts through long service, were made second lieutenants. This afforded a most satisfactory frame work with a personnel skilled theoretically and practically both at the top and at the bottom of the commissioned force. It may be added that a very large number of noncommissioned officers is necessary in this corps, owing to the fact that the electrical installations at artillery posts will demand some 50 skilled electricians for the care of the electrical devices which are absolutely indispensable to the system of fire control, on which rests the efficiency of the entire coast defenses of the country.

THE LIBRARY OF THE ARMY AND THE WAR DEPARTMENT.

This collection of books has usually been called the War Department library, yet in truth it belongs almost entirely to the Army of the United States, the books having been purchased from its contingent fund. Under these conditions it has been administered in the interest of the Army at large, while at the same time serving the office of the Secretary of War and all the bureaus of the War Department as a

library of reference and issue. The library has been under the general supervision of the Chief Signal Officer of the Army in addition to his other duties, and in connection therewith he has paid particular attention to the selection of suitable professional publications and their proper cataloguing for the use of the Army. Under this policy the library is gradually attaining a rank as one of the best collections of military literature in the world, despite the fact that less than \$1,000 annually is spent on it.

Exclusive of the public documents and Government publications, there were added to the library during the year 1,190 books and pamphlets and about 800 periodicals. Of the books, 457 were acquired by purchase and 313 by exchange and 420 by gift. Those purchased, either for professional research or reference, include publications on war and allied sciences. Special attention is given to the collection of historical works on American wars, and the books contributed as gifts are largely those relating thereto. Special consideration is also given to works bearing on the resources and political conditions of countries which are engaged in warfare, or where such contests are anticipated, so that officers of our Army may intelligently follow current military operations.

The library has been very successful in exchanges, as authorized by the law of January 12, 1895. In exchange for military publications of the War Department this library has received during the past year no less than 34 separate military periodicals from foreign countries.

Particular efforts have been made to obtain books and pamphlets relating to American wars, especially the war for the Union. Many pamphlets and books have been donated to the library in answer to widely distributed circular letters. Gradually the deficiencies in important military serial publications are being filled by purchase or exchange.

The regulations extending the use of the library to officers of the Army on duty at distant posts have had gratifying results. No book has been lost and none materially damaged. The professional value of this privilege to officers is indicated by the fact that, despite war conditions, no less than 483 books were loaned by registered mail during the fiscal year. The professional activity of the officers is evidenced by the character of the publications borrowed, which largely pertain to the higher branches of scientific and military literature.

No account was kept of the number of books consulted in the library until December, 1897, but as the number consulted during the last six months of the year was 4,859, it is probable that not far from 10,000 volumes were consulted during the year.

The number of volumes loaned to officers and men of the Army and clerks of the War Department in the city of Washington was about 3,600. This makes the total library use some 14,000.

In accordance with law, the use of the library has been extended by the Secretary of War, under proper restrictions, to the faculty and students of the Columbian University. Historical students in steadily increasing numbers visit this library for study and research, and to them are accorded the amplest facilities permitted by the limited space.

The library force should be placed on a permanent and satisfactory footing. While the library has increased 40 per cent by the devolving on the library the distribution of public documents, the library force has only one regular clerk. No less than 20 employees have been assigned to the office during the year. While these clerks have, almost without exception, been faithful, yet their lack of library knowledge was such

that in most cases they have been actually a drawback in the work in hand. The library force should consist of the librarian, who should be a fourth-class clerk, and two assistants, who should be attached to the Secretary's office and be an actual part of the library force.

The death of the former librarian, Mr. David Fitzgerald, a clerk at \$1,400, was followed by the appointment of Mr. J. W. Cheney, who, despite the increased labor that fell upon the office in reorganizing it, receives a salary of only \$1,200. The library has never been arranged or catalogued under modern scientific methods, and its utility has been greatly impaired by the lack of proper and systematic arrangement. Since the beginning of the new administration in December last, nearly two-thirds of the library has been rearranged under the general features of the Cutter system of classification, modified as the peculiar character of this library necessitated.

Especial attention has been given to the cataloguing, filing, and arranging of the very valuable photographs and photographic negatives relating to the war for the Union. There are now over 8,000 such photographs on file in the War Department Library. These valuable collections have been placed beyond the chance of future injury, and are so arranged that any single photograph can be at once reproduced. The process of identification has of necessity been slow, and there are yet several hundred portraits of distinguished soldiers and civilians in the unrecognized list. A finding list of the photographs and photographic negatives has been printed, thus widely extending the value and knowledge of these collections. In exceptional cases, where such action would be in the public interests, or as a proper concession to surviving relatives, permission is granted, in accordance with the instructions of the Secretary of War, for reproductions of selected photographs under rigid restrictions insuring the safety of the negatives.

WAR DEPARTMENT DOCUMENTS.

The distribution of such documents as are published by the War Department, printed only in small editions for the use of the Army, has been regularly and systematically conducted.

The creation of a large army made it necessary to modify the restrictive law regarding the military publications of the War Department. The Chief Signal Officer therefore recommended to the Secretary of War that legislative authority should be obtained for the future printing of as many extra copies of the military publications of the War Department as might be necessary for the instruction of the National Guard of the various States. In addition, Congress provided, on the recommendation of the Chief Signal Officer, for the printing and distribution of 35,300 volumes of various manuals, regulations, and drill publications, which were issued under conditions imposed by public resolution No. 24 (Appendix No. 13). There have been received more than 120,000 and been distributed more than 60,000 War Department documents during the year. This work, carried on in obedience to the special provisions of law, is of such importance in character as to demand the assignment to it of a permanent clerk. Legislation by Congress is necessary, and should be obtained, whereby the National Guard can obtain at their own expense the military publications of the War Department, which can now neither be issued nor sold except by special Congressional authority.

A. W. GREELY,

Brigadier-General, Chief Signal Officer of the Army.

The Honorable

THE SECRETARY OF WAR.

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APPENDIX No. 1.

REPORT OF LIEUT. COL. RICHARD E. THOMPSON, UNITED STATES VOLUNTEER SIGNAL-CORPS, ON THE OPERATIONS OF THE CORPS AGAINST MANILA, PHILIPPINE ISLANDS.

HEADQUARTERS DEPARTMENT OF THE PACIFIC AND EIGHTH ARMY CORPS,
OFFICE CHIEF SIGNAL OFFICER,
Manila, Philippine Islands, August 29, 1898.

CHIEF SIGNAL OFFICER,
United States Army, Washington, D. C.

SIR: I have the honor to report as follows relative to the work of signal parties during recent operations:

The day immediately following the arrival of the signal command in Manila Bay, July 31, it was disembarked and assigned to quarters at Cavite, and preparations were at once made for the connection of this point, then the base of supplies, with the advanced camp of troops before Manila. Although by direct route from Cavite to the camp did not exceed 8 miles, the distance around by land was at least twice as great, and through a country difficult at all times, but rendered nearly impassable during the heavy rains then prevalent and the great heat.

There was utter lack of the ordinary army transportation, so that the only recourse in this respect was to the small ponies and native carts of the country; but, notwithstanding the difficulties of road and the lack of facilities, the base was placed in communication with Bakor, the insurgent headquarters; Paranaque, the secondary base; the camp, and the trenches in less than four days—no great feat, apparently, to those not familiar with the difficulties to be overcome, but one, under the circumstances, calculated to tax the endurance and perseverance of the men to the utmost, and bring into marked prominence their indifference to hardship and privation and their devotion to duty, and indicating in the most unmistakable manner the capacity of their officers to command.

During the period of line construction communication between the several transports was maintained by flag detachments, and after completion of the telegraph reports were transmitted through the elevated flag station at Cavite from the most advanced position of the line to both the transport fleet and the navy; and from the time of its completion to the day of the assault the telegraph and flag system was of the utmost importance in informing the different commanders of the condition of their troops and supplies, the progress of affairs at the front, and the character of the almost nightly engagements at the trenches, during one of which the hazardous work performed by Corporal Dozier and Private Greene, in repairing the field telegraph line under a hot fire, was of such a character as to call forth the special commendation of the brigade commander.

On the night of August 12, orders having been issued for the disposition of troops and the assault the next day, five signal details, each under the command of an officer, were made—one each to the division commander, the two brigade commanders, and the reserve; and an important station was established on the beach, with instructions not only to maintain communications of the army, but to facilitate the cooperation of the navy, by the display of prearranged signals for the control of their fire, not only during the bombardment of the fort and the enemy's line of trenches, but for directing its fire in front of the army during its advance; and the effective work of the *Callao* in running close in and maintaining a rapid fire against the Spanish position during the progress of the assault, not only marks the intrepidity of her commander, but indicates the satisfactory working of the system of signals.

The efficiency of the signal parties can perhaps be best illustrated by stating that during the engagement the different parts of the army were at all times in actual cooperation until the carriage of the works and the entrance of the troops into the city, touch being temporarily lost only while carrying forward the line and establishing stations under fire. The party designated to signal the navy maintained its position, either with or in advance of the firing line, and its signal flags were the first emblems of the United States to be displayed within the enemy's works.

It is most gratifying to be able to record that during all the operations, both preceding and during the assault, each individual of the signal detachment, officer and man, performed his duty in every respect with most scrupulous and zealous devotion.

Very respectfully, your obedient servant,

R. E. THOMPSON,
Chief Signal Officer and Lieutenant-Colonel Volunteers.

INCLOSURE 1.

REPORT OF CAPT. E. A. McKENNA, COMMANDING FIRST COMPANY, VOLUNTEER SIGNAL CORPS.

MANILA, PHILIPPINE ISLANDS, *August 17, 1898.*

Maj. R. E. THOMPSON,
*Volunteer Signal Corps, Chief Signal Officer,
Department of Pacific and Eighth Army Corps, Manila, Philippine Islands.*

SIR: I have the honor to submit the following report of the battle at Manila August 13, 1898:

On that morning my company consisted of 55 men, and was distributed as follows:
At Cavite: Sergeants Knapp and Mowbray, Corporals Vose and Schoeneman, and Privates Banning, Biebel, Ryan, Scheuer, Reeves.

At Bakor: Sergeant Sloan and Corporals Stock and Lindholm.

At Paranaque: Sergeant Neal and Privates Holloway and Williams.

At Camp Dewey: Sergeant McKinstry, Corporals Smith and Bietau, and Privates Reed and Neal.

On board S. S. *Newport*: Corporal Jones and Privates Daley and Stewart.

In Second Brigade Hospital: Corporal Emerson.

At the front, with Lieutenant Rudd: Sergeant Watkins and Privates Ten Eyck, Logan, and Ray. With Lieutenant Kilbourne: Privates Fowle, Curtis, Dunn, and Walters. With Lieutenant Perkins: Sergeant Cunningham and Privates Burgess, Gorsuch, Greene, Mize, Rudrew, and Russell. With Lieutenant Chance: Sergeant Dozier, Corporal Gordon, and Privates Forman, Gellerman, Inman, Hopkins, and Cutler.

My detail consisted of Sergeants Gibbs, Kelly, Sellar, and Jurs, Corporal Howser, and Privates Cooke, Wadak, Shalda, and Frazier.

The officers, with the various details as above, left Camp Dewey at 6 a. m. Lieutenant Chance and detail were sent to establish an office at General MacArthur's headquarters, he being assigned as chief signal officer First Brigade, Second Division of the Eighth Army Corps.

Lieutenant Perkins and detail were assigned to take charge of office established at Church, he being chief signal officer Second Brigade, Second Division, Eighth Army Corps.

Lieutenant Kilbourne and detail went to Passay with myself and opened an office, Lieutenant Kilbourne being assigned as chief signal officer of reserve.

After opening an office at General Anderson's headquarters at main reserve, Lieut. Rudd and detail were left in charge of said office.

Myself and detail went to the beach on the extreme left of our intrenchments and established a signal office in rear of hulk.

All of the above offices were working "O. K." at 7.30 a. m.

At 9.30 the fleet began the bombardment of the Spanish fortifications, the Signal Corps with their flags indicating the exact spot where each shot took effect; also directing the flagship whether their shots were too high or too low.

At 10.10 a. m. my detachment signaled the fleet to cease firing, and immediately thereafter the advance of the Second Brigade, commanded by General Greene, was begun.

Sergeants Gibbs and Jurs carried Signal Corps flags on the left flank of the Second Brigade, which was directly exposed to the fire of the enemy, and Privates Frazier and Wadak supported them.

The Spanish intrenchments were gained by our troops of the Second Brigade at 10.35 a. m. At 10.50 a. m. telegraph communication was made inside the Spanish intrenchments with our troops, the wire having been strung from previous station by Sergeants Kelly and Sellar and Corporal Howser, and Privates Burgess and Gorsuch from Lieutenant Perkins's detail. At the same time First-Class Sergeant Chadwick, of the Signal Corps, United States Army, assisted in the work. Wire was then strung some half a mile farther, and an office opened in an English house in the outskirts of Malate.

Wire was interrupted for a short time on account of troops passing over it and breaking connection. Everything, however, was in first-class working order at 3 p. m.

Lieutenant Rudd and his detachment were ordered to report to me at Malate, there being no further occasion for office at the main reserve.

Lieutenant Kilbourne, with his detachment, was ordered to close office at Passay and report to me at Malate.

Lieutenant Rudd reported to me at 4.30 p. m. and Lieutenant Kilbourne at 4.45 p. m. Lieutenant Chance and detachment were ordered to return to Camp Dewey. The telegraph office, with Lieutenant Kilbourne in charge, remained at Malate, and my detachment, also Lieutenant Rudd's, came toward the city of Manila and established an office at General Anderson's headquarters.

When General Greene's troops entered the intrenchments I notified General MacArthur, on the right wing, that the Second Brigade had gained the enemy's intrenchments, and that the Spaniards had apparently abandoned the same upon the commencement of the bombardment by the fleet.

I wish to commend the bravery of all the men in my detachment, and especially the good services rendered by Sergeants Gibbs, Kelly, Jurs, and Sellar, and Corporal Howser. I also wish to call attention to reports of Lieutenants Chance, Perkins, Kilbourne, and Rudd, which are hereto attached and made a part of this report.

When connection was first made inside the Spanish intrenchments at 10.50 a. m. the men of my detachment and also First-Class Sergeant Chadwick were subjected to the fire of the Spanish soldiers, but, fortunately, none were hit with the enemy's bullets.

While the office was being established in the English house heretofore mentioned, and while two of my men were busily engaged running the wire through the window, a fusillade of shots was fired through the window, my men narrowly escaping serious injury. A private of the Colorado regiment was seriously wounded in the neck within a very few feet of where my men were at work.

Every man of the First Company of the Signal Corps was anxious to be the first man to cross the Spanish intrenchments, and all, without exception, did their duty in the positions assigned to them.

A red and a white flag of the Signal Corps were the first American emblems shown within the Spanish intrenchments, being there some minutes before the Spanish flag was pulled down and the American flag run up in its place. Established a telegraph office at General Anderson's headquarters, near walled city, at 4.45 p. m., putting him in telegraphic communication with all the troops of Second Division, Eighth Army Corps.

Hereto I append report of trip from San Francisco to Manila.

In pursuance of orders issued by Major-General Otis, dated Camp Merritt, June 25, the First Company of Volunteer Signal Corps, consisting of 5 officers and 55 men, left Camp Merritt June 26, 1898, at 11 a. m., and marched to Pier No. 7, San Francisco Dock, arriving there at 12.15 p. m., going on board the steamship *Indiana* en route to Manila.

Two men of the Signal Corps, viz, Dozier and Howser, were detailed for duty on the *Morgan City*, Privates Dunn and Frazier were detailed for duty on the *Ohio*, Privates Jones and Daley on the *City of Para*, and Privates Gordon and Cutler on the steamer *Valencia*, which steamers, with the *Indiana*, formed the third expedition to the Philippines, commanded by Brigadier-General MacArthur.

The expedition steamed out of harbor at San Francisco June 27. On the way out of harbor, signals were exchanged between Signal Corps men on steamship *Indiana* and flag stations along the entrance to the harbor.

June 28: Sea very rough. Early in the morning messages were sent from the *Indiana* by Privates Jurs, Stock, and Knapp to other vessels of the fleet, the sending flagmen having to be lashed to the bridge on account of rough sea.

On trip from San Francisco to Honolulu there were no incidents of any importance.

Monday, July 4: All drills were suspended and exercises in commemoration of our national birthday were held on the cabin deck, consisting of music by the band, oration by Major Lord, music and chorus. General MacArthur acted as president of the day.

Sighted Hawaiian Islands at 3.30 a. m. July 6. Made Honolulu Harbor at 6 a. m. *Ohio* and *City of Para* already in port; *Morgan City* arrived at noon.

All men of the Signal Corps were allowed to go on shore July 6 and 7. *Valencia* arrived at midnight July 6.

On July 7 the First Company of Signal Corps was landed in a body from the *Indiana* and marched to the palace grounds, where they were served an elegant luncheon by the citizens of Honolulu, the officers being entertained by the officers of the Hawaiian National Guard at their bungalow.

The *Indiana*, *Valencia*, *Morgan City*, *City of Para*, and *Ohio* left Honolulu Harbor Friday morning, but on account of machinery of *Indiana* being out of order the fleet returned to the entrance of the port.

During stay in port at Honolulu the Signal Corps was engaged in sending messages

between the various ships by flag. The fleet finally sailed from Honolulu at 2.30 p. m. July 9.

The weather from San Francisco to Honolulu was not excessively warm, but after leaving Honolulu it began to get unbearable.

Up to July 20 no incident of importance occurred, except the death of a private of the Twenty-third Infantry on July 14.

Private Ralph R. Bowers, of the Signal Corps, died at 7.35 p. m. on July 20. He was first taken sick on July 17, complaining of indigestion. From best information obtainable it appears that he overloaded his stomach with canned goods, and a short time after he went down into the engine room, where the thermometer was about 120°, and immediately after coming out of the engine room took a shower bath. He was sent to the hospital on the 17th. On the morning of the 20th he seemed to be much better, having passed a quiet night. At 7 o'clock p. m. on July 20 Captain McKenna, Sergeants Gibbs, and Corporal Smith went to see him, there being no appreciable change in his condition; but a few minutes later it was noticed that death was imminent. He passed away quietly, with scarcely a struggle. The doctors pronounced the cause of death to be heat exhaustion and heart failure. A list of the effects of Private Bowers was made by the captain, and witnessed by Lieutenants Chance and Perkins. Thursday, July 21, the remains were consigned to the sea at 10 o'clock a. m., from port side of the ship, in longitude 155° 46' east, latitude 20° 48' north. The service of the Episcopal Church was read, and six pallbearers and the whole company were present at the ceremony, including the company officers; also General MacArthur and Colonel Ovenshine, of the Twenty-third Infantry. The band of the Twenty-third Infantry played a funeral march and "Nearer, my God, to Thee." Taps were sounded.

Up to this date a morning drill of one hour and an afternoon drill of one hour in wand practice were had on board ship, also inspection of arms at 3 o'clock p. m., but subsequent to this date the weather was so warm that these drills and inspections were dispensed with.

Lieutenant Kerr, of the Engineer Corps, died at 9.30 p. m. on the 21st, and was buried Friday, July 22, at 9.30 a. m., from the port side of the ship.

Corporal Vose was quite ill July 22 with neuralgia.

We passed the Ladrone Islands Friday evening, July 22.

July 25 and 26 I served with general court-martial on board *Indiana*.

The fleet arrived at Cavite at 4 p. m., July 31, and cast anchor. The harbor was sighted at 9 a. m., but several hours' delay was occasioned waiting for the *Morgan City* and *Valencia*.

On the voyage the quarters of the men were as good as could be expected owing to the crowded condition on board. The health of the men was fairly good as an average. More fresh vegetables would have been conducive to good health, but it was impossible to bring such articles of food such a long distance. With one exception no serious illness prevailed.

Distance traveled from San Francisco to Manila, 6,995 nautical miles.

Hereto attached are reports of Lieutenants Chance, Perkins, Kilbourne, and Rudd, covering their detached duties during campaign ending in the capture of Manila.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF LIEUT. WILLIAM W. CHANCE, FIRST LIEUTENANT, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898.

I was assigned for duty as chief signal officer of First Brigade, Second Division, Eighth Army Corps, at the headquarters of General MacArthur, on the extreme right of the attacking line, with the following men: Sergeant Dozier, Corporal Gordon, Privates Hopkins, Gellerman, Forman, Cutler, and Inman. Corporal Gordon had been detailed to set up instrument at this station on the evening of the 12th.

Left Camp Dewey at 6 a. m., following the main telegraph line for about 1 mile, to the headquarters of General Anderson; then proceeded to our station in the trenches on the right, between the Astor and Utah batteries, arriving at 7.30, and reporting to General MacArthur, who had reached there shortly before. Wire working well. Wire open at 7.50. Sent out Dozier and Hopkins, who found wire grounded; cleared it, and reported back at 8.05.

At 11.30 sent Sergeant Dozier to the front with message for General MacArthur. At 12 sent Hopkins to the front with message for General MacArthur, distance about 1½ miles. Cutler accompanied him about half way to relay reply if any. At 2.20

p. m. I delivered message to General MacArthur, who, I found, had raised flag in Paco and was entering Malate.

At 6.10 moved telegraph instrument to second floor for protection from rain.

At 6.55 received orders from you to return to Camp Dewey with instrument and extra supplies, which orders were carried out.

During the engagement the men under my command worked diligently and faithfully, rendering very efficient service.

The file of telegrams received and sent during the day shows: Messages sent, 31; received, 21; the greater portion of the work having been done between the hours of 8.30 a. m. and 2.30 p. m.

REPORT OF LIEUT. WILLIAM W. CHANCE, VOLUNTEER SIGNAL CORPS.

DETACHED DUTY, August 3 to 21, 1898.

Was in command of detachment at Cavite, Philippine Islands, August 3. Purchased two horses, giving order on quartermaster for \$150, Mexican. At 1 p. m. detailed Privates Schoeneman and Fowle to cut our wire in at the insurgents' telegraph office, Cavite, to complete circuit over insurgents' wire from Cavite Arsenal to Bakor, or to point of Lieutenant Kilbourne's detachment. After cutting our wire in, Schoeneman went out the line 3 or 4 miles and returned with report that it was in good condition.

August 4, 5, 6, and 7: At 9 a. m., 4th, Sergeant Knapp and Private Reeves started on horseback to carry coppers to you (Captain McKenna). I purchased a horse, giving order on depot quartermaster for \$70, Mexican. Lieutenant Rudd, with Schoeneman and Fowle, started on horseback at 9.45 a. m. to clear line from Cavite until you and party were met. At 6.45 p. m., as the wire had not as yet begun working, I concluded that something was wrong between Cavite and Lieutenant Rudd's detachment; so, with Sergeants Jurs, Neal, and Mowbray, I started out to repair line. When at a point about 1½ miles from Cavite Arsenal, discovered a bad cross, the upper and lower wires being twisted together in such shape that it was necessary to cut out about 300 yards of the upper wire. After cutting the wire, tying up the ends, and putting in several pole supports, went on quarter of a mile and tested back to Cavite, finding wire clear. This work occupied four hours' time, owing to a heavy rain storm and nearly total darkness. From this point to Baleta, which is about 8 miles, found wire off many insulators, and quite a number of places where it was necessary to clear away overhanging limbs which interfered. In Baleta is a telegraph office operated by the insurgents, which it was believed interrupted the working of our instrument. We therefore proceeded a little beyond and made a test, but were unable to raise Cavite. It was evident that the trouble was in the insurgents' office. We returned, cut the office out, and made another test, which proved conclusively that this office was the cause of the break, as the line now worked clear through to our Cavite office. The above office was cut out at 4.20 a. m., the 5th. About one-half mile before reaching Bakor found that new wire had been strung from other direction, and I recognized our insulators. At this point I was unable to raise either Cavite or Bakor, but, owing to the fact that a new wire had been strung, I concluded that the programme had been changed; hence I pushed on to Bakor, arriving there at 8.45 a. m., to meet you, and received orders to take your squad and string wire back to Cavite as soon as possible. Strung insulated wire down to and across Bakor River and about 2 miles beyond; then took up iron wire as far as Cavite Viejo. Here you caught up to us and gave further orders regarding the line; then went back to Bakor. Leaving Cavite Viejo in two squads, work was divided up. Squad under Sergeant Knapp wired up to within a short distance of Baleta, connecting the wire put up by my squad, my men having gone on through and beyond the village about three-quarters of a mile. It then being 8.30 p. m. and too dark to continue work, I took the men back to Baleta, where we stayed all night, rising next morning, the 6th, at 4, and started ahead; divided as before, Sergeant Knapp, Corporal Sellar, and Private Burgess going to broken bridge and wiring from there along the beach; the other squad, Privates Hopkins, Schoeneman, Logan, Inman, and Reeves, continuing and connecting at broken bridge; then pushed forward, overtaking first squad at next native village. From here we pushed on into San Roque, where we ran short of wire. I went into Cavite (about a mile distant) for wire and found supply exhausted. Lieutenant Perkins secured boat, went to the *Morgan City*, and brought in enough to complete line. In the meantime Private Hopkins had come in with carromato, and reported that they had also run short of insulators. Loaded wire and insulators on carromato and returned to the line, taking Biebel and Wadak out to relieve Inman and Logan, who were exhausted. We picked up the wire and continued work until 8.30 p. m., when Private Schoeneman became suddenly ill. I then abandoned the job until next morning and took Schoeneman into the hospital.

At 5 a. m. of the 7th I took Sergeant Neal, Privates Fowle, Reeves, Schener, and Garsuch out, and in an hour's time completed the line so that communication was opened up from Cavite to Camp Dewey, over a line fully 28 miles long, including the line to the trenches.

The duties as assigned to and assumed voluntarily by the men were performed with the utmost alacrity and thoroughness, and it gives me pleasure to make special mention of the fact, as the personnel of the men is above the average, and I consider it the least I can do by highly commending their actions.

On the 7th, at 8 a. m., as per your instructions, Corporal Sellar, Privates Burgess, Hopkins, Inman, and Logan, with the train of five carromatos, started back to Camp Dewey. During the remainder of the day, and also the 8th, I attended to office duties.

August 9, in accordance with your telegram, I left Cavite on launch at 4 p. m. and reported to you at Camp Dewey at 6.30 p. m.

WM. W. CHANCE,
First Lieutenant, United States Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF FIRST LIEUT. PHILIP J. PERKINS, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898.

Detachment arrived on station, designation H, and located in rear of small building at trenches, this being the headquarters of General Greene, at 7.15 o'clock a. m. This office had been previously operated, and was in charge of Sergeant Cunningham, who was detailed to remain with my detachment, the personnel of which was as follows: Sergeant Cunningham, Privates Mize, Burgess, Garsuch, Greene, Rudrew, and Russell.

Reported to Colonel Hawkins, Tenth Pennsylvania Regiment, in charge, as General Greene had not arrived. Later reported to General Greene.

This office was situated on wire No. 1, there being but two other offices connected up; therefore less business was transacted than would otherwise have been the case. However, upward of fifteen official messages were sent and as many more received during the engagement. Among those officers availing themselves of the use of the wire were the following: Generals Anderson, Greene, Babcock; Captains Clark, Young; Lieutenants McCain, Gibbs, and others.

Detailed Cunningham and Greene as operators, Garsuch and Mize as linemen, the others as messengers, and am pleased to report that without exception the duties were promptly and cheerfully performed, although during the early part of the day a heavy rain storm was in progress.

Made notes of the following: First shot from war ship fired at 9.27 a. m.; first shot from light battery at intrenchments at 9.45 a. m. A few stray Mauser bullets overhead were the only indication of hostilities from the Spanish side, but much artillery fire from our intrenchments. General Greene soon vacated his headquarters, and soon thereafter, acting under orders, office was cut out and removed to beach. Later, orders to reestablish at old quarters without interrupting business were received. This was accomplished by making a loop, but, on account of scarcity of wire, established office in small native house on the breastwork some 75 yards nearer beach than original office.

Private Wadak reported for duty with this detachment in the afternoon, and all were present at retreat.

Divided the time so that each man stood one and one-half hour watch during the night. On your request sent Garsuch and Burgess to assist with line.

Line in operation till about 9 o'clock, when break occurred. Sent out Sergeant Cunningham and Privates Russell, Garsuch, and Mize, who returned about 10 o'clock, having found and repaired leak.

No provision had been made for commissary supplies, and the men began to feel the need of food; so about noon, after having failed to learn the disposition to be made of the office and men, I decided to send to Camp Dewey for supplies, detailing two men for this duty. Before their return word was received to take my detachment to Camp Dewey, leaving operator to attend to office. This was done, one man returning to take rations to men left at Station H. Reported at Camp Dewey, to pack and help move effects to new station near Manila. Lieutenant Chance in charge at Camp Dewey. Reported to him, thereby concluding tour of duty of detachment assigned the previous day.

I again wish to express my satisfaction with the conduct of the men under cir-

cumstances which were trying and well calculated to test a man's nerve to the utmost, viz, performing the duties of messengers and operators during action in the field.

PHILIP J. PERKINS,
First Lieutenant, United States Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF FIRST LIEUT. CHARLES E. KILBOURNE, JR.

On June 9 I reported for duty in San Francisco, Cal., and was ordered to organize and drill the Volunteer Signal Corps men then at Camp Merritt. I proceeded at once to Camp Merritt, and on the following day issued orders for the government of the camp of the Signal Corps, with the hours for meals, roll calls, and drills. There were four hours' drill each day, and rapid progress was made in the signal drill, conducted by First-Class Sergt. Thomas B. Horne, Signal Corps, United States Army, and in the school of the soldier, which I conducted in person. In the latter I was greatly assisted by First-Class Sergeant Gibbs and Privates Knapp and Jurs. On June 25 you assumed command of the camp, continuing me as tactical officer under your direction.

From June 25 to August 3 I held no independent command. On the latter date, after a cargo loaded with stores and men had been landed at Paranaque, I was given a squad of 8 men—Sergeant Sloan, Corporals Kelly and McKinstry, and Privates Hopkins, Bietan, Gellerman, Cooke, and Lindholm—with orders to run a wire in the direction of Cavite, using the insurgents' poles, and making as rapid progress as possible. Loading three carromatos with telegraph materials, and having each man carry his carbine and ammunition belt, we attached the wire to the pole on the right bank of the Paranaque River and started. The men worked with a will under direction of Corporal Kelly, who, being a practical lineman, was given charge of the details, and we were soon beyond the limits of the city. The insurgents had two wires strung on the poles and we cut in on the lower one, appropriating about 3½ miles of it. Here their line branched off and we had to string our own wire again. After proceeding about a mile farther I decided not to return to Paranaque for food and blankets, as it would require about two hours, but to live on the country and use every hour of daylight for work. Leaving the men under command of Sergeant Sloan, I went ahead to the town of Baker, found the insurgents' headquarters, and asked for General Aguinaldo. He was not in town, but I obtained from his adjutant, Lieut. Col. Lazaro Makapag, a room for my men and supper for the whole detachment, and from the local president permission to set up our instruments in their local telegraph office and to use their wires to communicate with Cavite, where an office of the Signal Corps had already been established. Returning to my squad, I ordered them to stop work for the night. Throughout the day heavy rain had fallen, drenching the men to the skin; the roads were abominable, and the work was frequently interrupted to lift the carts out of deep mud holes; but I heard no complaint from any of the men, though a long sea voyage had unfitted them for such heavy labor. Corporal Kelly took the lead in cheerfulness, and I can not praise his work too highly.

After supper I took Corporal Kelly and Private Hopkins to the telegraph office, and, connecting our instruments to their wires, endeavored to raise Cavite, but without success. We could hear the alphabet used on a Wheatstone instrument, and finding that there was such a station between us and Cavite, decided that that was the difficulty. The local authorities were angry at the cutting of their wire, but I refused to discuss the matter with anyone but General Aguinaldo, whom I had decided to visit on the following morning, hoping to obtain permission to use his whole line until our own had been run. This I had been instructed to do by Major Thompson.

On August 4 I aroused the men at daybreak, and, after a breakfast of biscuits and coffee, furnished by insurgents, we started work again, using insulated wire where houses or trees would cause heavy grounds. This I did to save the time necessary for trimming trees. Leaving the men under command of Sergeant Sloan, with instructions to push ahead as rapidly as possible, I drove to Buleta, 4 miles away, where General Aguinaldo had established his headquarters. He was sick in bed, and refused to see anyone, but from his second in command I obtained a general permit to use any office in the country, setting up our own instruments and using their wires to send our messages, provided that we would reattach them to their own instruments when through. This, he said, was the limit of his authority. He protested at the cutting of their wire, and asked that it be not done again. I

told him it should not be unless necessity compelled it. Being unable to gain any greater concession, and ascertaining that there was no office between Baleta and Cavite, I returned to Bakor. There I met you (Captain McKenna) with Private Mize. You gave me a message from General Greene to General Merritt, and directed me to have it flagged to the *Newport*. I took Private Mize to the shore, and for two hours tried, without success, to flag the ship. I then hired a native boat, and started to the *Newport*, but about half a mile from shore the boat began to take in water heavily, and the natives refused to proceed. They ran in for the shore, and, on grounding, deserted the boat, leaving me in a rice swamp 2 miles from Bakor. I returned to that place and tried again, without success, to raise the *Newport* with the flag. Major Hale, the general's aide, came to the beach about 4 o'clock, and I delivered the message to him as he was going over in a launch. I then rejoined my party, which had run the line through Bakor, making about $2\frac{1}{2}$ miles over most difficult ground. I found that they were about to stop work, being utterly exhausted and under the impression that they would have the long march to Paranaque to make. Sending a native to make arrangements for the men to have supper and room in Bakor as on the preceding night, I put them back to work until sunset. The heavy rains had continued, and the exhausting work, with but little food, had tired the men out; but they worked willingly, taking turns climbing poles and carrying wire, the carromatos being too small to hold the wire reel.

At dusk Lieutenant Rudd rode in from Cavite with Privates Fowle and Schoeneman. Lieutenant Rudd stated that Major Thompson had ordered him to inform me that the line must be completed that night. As we were still about 9 miles from Cavite, there was only one way to do this, which was to take the insurgent line. This could not be done without cutting out the office at the insurgent headquarters in Baleta, and it was necessary to obtain Aguinaldo's consent to this; otherwise he would cut us out again on discovering what we had done. I directed my men to cut in on the insurgent line, and then dismissed them for the night, excepting Corporal Kelly, who accompanied Lieutenant Rudd and myself to Baleta to cut out that office if we obtained permission. General Aguinaldo was still in bed, but we insisted so strongly that he finally consented to see us. We explained our errand and the necessity for it, and pressed our point for over an hour, but without success. He would grant anything else; but, having a large army in the field, he said, it was necessary for him to have his line in order to supply them with food and ammunition.

Finding that he would not yield us our wish, even for a day or two, we returned to Bakor, connecting his line again to avoid unnecessary complications with him. We had communication by telegraph from Camps Greene and Dewey to Bakor, and there was a large cathedral at the latter place where an excellent flagging station could be established. I decided to establish a station there and go to the *Newport* the following morning and report to Major Thompson the impossibility of reaching Cavite at once, but that messages might be flagged by the ship to Bakor, and thence by telegraph sent to the front.

On August 5 I arose at daybreak, and leaving orders with Corporal Kelly to establish flag station on cathedral with two men and with the others to continue the line toward Cavite, Lieutenant Rudd and I went in a native boat to the *Newport* and reported to Major Thompson. After breakfast messages were sent from the ship to the camp and back again, by flag to Bakor, and telegraph from thence to camp, showing the practicability of the plan. Major Thompson decided to establish an office at Bakor, and returned to the place with Lieutenant Rudd and me. There we met you (Captain McKenna) and proceeded to headquarters of the insurgents, where Major Thompson insisted upon having a house for an office. One was assigned, but was unsatisfactory, and before another could be had the Major left.

Later I secured the Tribunal Municipal, a stone building, well situated, and established an office there. Corporal Kelley had gone ahead with part of my squad, and some other members of the company had reached Bakor from Cavite. These I decided to keep with me. My new detachment consisted of Sergeant Sloan, Corporal Emerson, and Privates Stock, Walters, Shalda, Lindholm, Ray, and Cooke. The afternoon was spent receiving messages from the front over the wire and flagging them to the *Newport*, and vice versa. An order was received to concentrate carromatos and beasts of burden at Bakor on the following day to transport stores to camp. By applying at the insurgent headquarters I had native runners sent out over the country to gather them in. At night an important dispatch came over from General Greene to General Merritt, with orders to deliver at once. Having no torch, I went to the *Newport* in a small boat, delivering the message about 10 p. m. On returning I carried with me General Merritt's reply and some messages from Colonel McClure, chief paymaster. These were wired about midnight, and the answer received, but it was too late to get another boat, so I decided to flag them about daybreak. With Sergeant Sloan's assistance I made out the detail for flag and telegraph work. From this time, as long as I was in charge at Bakor, Sergeant Sloan was of great assist-

ance to me, and I can not commend him too highly for his energetic and faithful work or for his sound judgment in cases of emergency.

August 6: From 5.30 to 6.30 a. m., efforts were made to raise the *Newport*, but without success, heavy rain obscuring the vision. I then delivered the messages in person by means of a native boat. There was a storm, and being offered a trip ashore in the launch which was to take the paymasters ashore, I dismissed the native boat, which ran into Cavite for shelter.

I was given a message from General Merritt to General Greene. After the launch had left the *Newport* they decided to land at Paranaque, but were unable to do so on account of low water, so landed in canoes at Camp Greene. I delivered the dispatch to General Greene and returned to Bakor on horseback, reaching that place in time to reach General Merritt and staff at the shore and take them to the office. The afternoon was spent in receiving messages and sending them. The field telephones were attached, and General Merritt held a consultation with General Greene. Corporal Emerson and Privates Shalda and Walters being sick with cramps, were treated by Dr. Keefer, who accompanied General Merritt. This night, communication was established with Cavite, and messages sent through.

August 7: Was ordered about 11 a. m. to abandon office at Bakor and establish station at Paranaque. Leaving the men to bring forward the stores with a party on the way from Cavite. Sergeant Sloan and I drove to Paranaque, rectifying crosses and grounds on the way. By reason of permit obtained from insurgent authorities we were enabled, by using the local telegraph office, to establish communication a few minutes after reaching Paranaque. I then secured a permanent office, appropriated table and chairs to fit it up, and moved the instrument to that room. About that time you (Captain McKenna) reached Paranaque and took charge. Later, an order came from Major Thompson to keep up the station at Bakor, and I was ordered to return and reestablish it. Taking with me Sergeant Sloan, and leaving orders for Privates Lindholm, Cooke, and Shalda to follow, I returned to Bakor, intercepting the wagons carrying stores from there, and taking out enough for immediate use. I also turned back Private Ray. Sergeant Sloan and I reached Bakor about 7.30 p. m. and found that the local president had reestablished himself in the building, and that his council was holding session. We informed them that we must have the office again, and they agreed to vacate, leaving their furniture there till the following day. By 8 p. m. the office was cut in again and all working well.

August 8: Office work at Bakor.

August 9: Office work at Bakor. Lieutenant Perkins of your company landed some supplies, which were forwarded to the front in carromatos. I recommended the exchange of two operators for a flagman, as the work of the office was not heavy enough for so large a force. Private Stock was sent me, and I sent Privates Ray and Cooke to the front.

August 10: Office work at Bakor. Toward evening I received orders to turn the station over to Sergeant Sloan, and report to Camp Dewey the following day.

August 11: Turned over the office to Sergeant Sloan and reported at Camp Dewey at 9 p. m.

August 12: Received orders to connect the extreme left of our intrenchments with the point which was to be General MacArthur's headquarters in the approaching battle. With a squad consisting of Corporal Howser and Privates Bietau, Curtis, and Mize, I did so, using about six coils of insulated wire, which was raised so as to be out of reach of advancing troops.

August 13: Was established at 7.30 in charge of a station at Passay, where General MacArthur's reserve was to be posted. Shortly after 8, I reported to Colonel Owenshine, who was in command of the reserve, and delivered a message that we had intercepted at Passay, it being sent over the wire, addressed to him at Camp Dewey. My squad consisted of Privates Curtis, Dunne, Fowle, and Walters, and after stationing Curtis and Fowle at the key, I took Dunne and Curtis over the line we would have to repair, so as to familiarize them with it. We had six pieces of insulated wire about 20 feet long, bared at both ends for rapid repair work, and each man was issued some insulating tape. About 10.30, the wire grounded between Passay and the main reserves, and was repaired in ten minutes by Dunne and Walters. At 11.06 a. m. Colonel Owenshine, with the larger part of the reserves, was ordered to the front. Within half an hour the remaining troops, under Colonel Truman, were ordered forward. The current became so weak about noon that I cut my instrument out, reconnecting it from time to time in case any orders should be sent me. At 2.43 p. m. I received orders to report to you on the beach at Malate, cutting out my station before leaving. Reported at Malate, and after doing some line work in the outskirts and going forward with dispatches for Lieutenant McCain. A. A. G., I was left in charge of the telegraph station established at Malate. Colonel Jones was there in command of the Idaho troops and Utah battery, and I reported to him as chief signal officer of the station. At 7.30 he received a message over the

wire to bring his troops to General MacArthur's headquarters, and, except for the guard, the station was deserted.

August 14: In charge of station at Malate. Privates Fowle and Curtis repaired a heavy ground between our station and the intrenchments. We had no food. At 1 p. m. the station was ordered abandoned and an office established at General MacArthur's headquarters. This was done under your direction, and I reported to the Signal Corps headquarters.

CHARLES E. KILBOURNE, Jr.,
Second Lieutenant, Volunteer Signal Corps.

A true copy:

E. A. McKENNA,
Captain, Volunteer Signal Corps.

REPORT OF SECOND LIEUT. A. J. RUDD, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898.

Left Camp Dewey at 6 a. m. with detachment of four men, Sergeant Watkins and Privates Ten Eyck, Logan, and Ray, and followed telegraph line to my station one-half mile to the rear of the intrenchments. Proceeded at once to cut in the two loops from main wires on roadway to a hut about 150 yards distant, where General Anderson had established his headquarters, being in command of Second Division, Eighth Army Corps; set up instruments and intrenched the front of the building toward the firing line. Privates Ten Eyck and Logan were stationed at the key, both of them copying each message as it came in.

During my station here I handled a total of 39 messages; sent 18; received 21. At 2.40 p. m. General Anderson abandoned his station here, and I received orders from you (Captain McKenna) to cut out instruments and with my detachment report to you at the beach, where I arrived at 3.30 p. m.

REPORT OF LIEUTENANT RUDD WHILE ON DETACHED DUTY.

Upon orders received from you August 2, 1898, I proceeded at 9.45 a. m. with detachment of ten men, named as follows: Sergeant Neal, Corporals Sellar and Kelly, Privates Wadak, Logan, Lindholm, Williams, Schoeneman, Stewart, and Burgess to construct telegraph line from the arsenal at Cavite to the insurgent telegraph office on the outskirts of Cavite, a distance of half a mile. On account of the bad weather, and unsuitable conditions for stringing the wire, it took us till noon to complete the work.

On August 4, under orders from Major Thompson, left Cavite with detachment of two men, Privates Fowle and Schoeneman, at 9.45 a. m., on horseback, with instructions to follow the insurgents' telegraph wire until I met Captain McKenna or Lieutenant Kilbourne, and to inform either that there must be communication established within the next twenty-four hours and to hurry the work; in the meantime, to make occasional tests of the wire on the way, which was done, but were unable to break Cavite at our first test, about 4 miles from there. When our key was closed we could distinctly hear "C" calling "MC," so concluded wire was all right and that Cavite was not adjusted for us. Made numerous other tests along the road, sometimes hearing "C" calling "MC" and other times hearing nothing, but could feel strong current of electricity.

We met Lieutenant Kilbourne at 5 p. m., 2 miles west of Bakor, with instructions to carry a new wire through to Cavite. I then delivered my message and was informed that General Aguinaldo had refused us the use of his wire, and was quite angry at our having interfered with his communications in our tests. It being impossible to run a wire through to Cavite by the next night, Lieutenant Kilbourne, myself, and Corporal Kelly therefore proceeded once more to General Aguinaldo's residence at Old Cavite to make one more effort to secure the use of his wire. After much parley we secured an interview, which lasted an hour, but were unable to persuade him to give us the use of his wire even for a day, as he claimed he must have it to communicate with his army at the front. From there we returned to Bakor and spent the night. The next morning, August 5, at 6.30 a. m., with Lieutenant Kilbourne, hired a native boat which took us to the *Newport*, where I made my report to Major Thompson, after which did some flag work with Bakor. At 10.30 a. m. I returned with General Merritt and Major Thompson to Bakor. Upon arriving there met you and received orders to proceed to Paranaque and instruct Sergeant Cunningham to cut out his instrument, if he had already cut it in; also to stay there over night, but before arriving there you overtook me and gave the necessary instructions.

On August 6 received orders from you to report at Cavite, and there await orders. Upon my arrival at Bakor, order was countermanded, and was instructed to join Lieutenant Chance, who was continuing construction of line to Cavite. I joined him at 4.30 p. m., about 4 miles from destination, and reported for duty.

A. J. RUDD,
Second Lieutenant, United States Volunteer Signal Corps.

A true copy:

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

INCLOSURE 2.

HEADQUARTERS DEPARTMENT OF PACIFIC AND EIGHTH ARMY CORPS,
OFFICE CHIEF SIGNAL OFFICER,
Manila, Philippine Islands, August 14, 1898.

ADJUTANT-GENERAL,

Department of Pacific and Eighth Army Corps, Manila, Philippine Islands.

SIR: In accordance with instructions contained in your telegram of August 23, I have the honor to submit the following list of names of officers and men of the Regular and Volunteer Signal Corps who are entitled to special mention and reward for services in the campaign ending in the capture of Manila, with a brief recital of the services deserving particular notice.

For conspicuous gallantry during the assault on Manila, August 13, 1898: Capt. E. A. McKenna, Volunteer Signal Corps. This officer advanced up the beach with the firing line, his signal flags displayed that the fire of the navy should fall in advance of the army, and, after passing the enemy's fort, in which his flags were the first emblems of the United States to appear, he established an advanced telegraph station under fire of the enemy's second line, and maintained communication with both wings of the army till the enemy's positions were carried.

For distinguished and meritorious service during the campaign terminating in the capture of Manila: Lieut. William W. Chance, first lieutenant, Volunteer Signal Corps; Lieut. Philip J. Perkins, first lieutenant, Volunteer Signal Corps; Lieut. Chas. E. Kilbourne, second lieutenant, Volunteer Signal Corps; Lieut. Alson J. Rudd, second lieutenant, Volunteer Signal Corps. These officers, by their energy, indifference to privations and hardships, and devotion to duty, maintained communication between the several bases, the reserves, and the most advanced positions, and during the assault transmitted orders and gave information of the most vital character relative to operations of the army.

For bravery and distinguished conduct in taking photographic views of the engagement while under fire, during the assault on Manila, August 13, 1898: First Class Sergt. Harry W. Chadwick, Signal Corps, United States Army.

For specially meritorious and gallant service during the assault on Manila, August 13, 1898: First Class Sergt. George S. Gibbs, jr., Volunteer Signal Corps; Sergt. Henry F. Jurs, Volunteer Signal Corps; First Class Private Arthur H. Frazier, Volunteer Signal Corps; First Class Private Charles F. Wadak, Volunteer Signal Corps. These men advanced up the open beach with the firing line, displaying signal flags that the fire of the navy should fall in advance of the army, and, after passing the enemy's fort, in which their flags were the first emblems of the United States to appear, assisted in the establishment of an advance telegraph station under fire of the enemy's second line.

For gallant and meritorious conduct in repairing the field-telegraph line, under fire, while on outpost duty in front of Manila, August 5, 1898: First Class Sergt. Earnest Dozier, Volunteer Signal Corps.

For distinguished service in running the field telegraph up the open beach and establishing an advance station under fire of the enemy's second line, during the assault on Manila, August 13, 1898: First Class Sergt. Edward E. Kelly, Volunteer Signal Corps; Sergt. Mortmer W. Sellar, Volunteer Signal Corps; Corp. William W. Howser, Volunteer Signal Corps; First Class Private John W. Burgess, Volunteer Signal Corps; First Class Private Leonard L. Garsuch, Volunteer Signal Corps.

Very respectfully, your obedient servant,

R. E. THOMPSON,
Major, Volunteer Signal Corps, Chief Signal Officer

A true copy:

E. A. MCKENNA,
Captain, Commanding First Company, Volunteer Signal Corps.

APPENDIX 2.

REPORT OF COL. H. H. C. DUNWOODY, SIGNAL CORPS, UNITED STATES ARMY, ON THE ORGANIZATION OF THE UNITED STATES VOLUNTEER SIGNAL CORPS.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, September 12, 1898.

The CHIEF SIGNAL OFFICER,
United States Army.

SIR: I have the honor to submit the following report on the organization and equipment of the Volunteer Signal Corps, provided for by an act of Congress approved May 18, 1898, as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President is hereby authorized to organize a volunteer signal corps for service during the existing war, which corps shall receive the same pay and allowances as are authorized by law for the Signal Corps of the Army.

"SEC. 2. The volunteer signal corps shall consist of one colonel, one lieutenant-colonel, one major as disbursing officer, and such other officers and men as may be required, not exceeding one major for each army corps, and two captains, two first lieutenants, two second lieutenants, five first-class sergeants, ten sergeants, ten corporals, and thirty first class privates to each organized division of troops: Provided, That two-thirds of all officers below the rank of major and a like proportion of enlisted men shall be skilled electricians or telegraph operators."

In submitting report on the organization of the Volunteer Signal Corps, authorized by the above act, it will not be out of place to refer to that wise provision of the law which requires that two-thirds of the officers and enlisted men of the Volunteer Signal Corps shall be skilled electricians and telegraphists.

It should be noticed that this legislation was approved on the 18th day of May, 1898, about one month after the declaration of war, and that pressing demands had already been received from the various camps of volunteers, at that time rapidly filling up, for services of signal officers and skilled operators, which the Regular Signal Corps was not prepared to supply.

It was therefore necessary that this corps be organized, equipped, and placed in the field at the earliest moment, and no time could be spared for the slow process of examining into the efficiency of candidates for either appointment or enlistment in the Volunteer Signal Corps, the plan followed in 1861. The experience of the present war shows that the special requirements restricting the selection of the officers of the Volunteer Signal Corps secured the services of a large number of officers whose business experience and executive ability had previously been tested in electrical work, thus bringing valuable assistance to the Chief Signal Officer, who has supervision over the electrical work of the Army. This provision also tended in a measure to free the Signal Corps from appointments based solely on political preferment.

Another important advantage resulting from these special requirements of law, providing that a large percentage of the enlisted force of the Volunteer Signal Corps should be made up of electricians and operators, secured the services of a class of skilled men, possessing more than the average education, whose previous training enabled them to become proficient in signaling, including the use of the heliograph, with but a few hours' practice work.

On June 2 the formation of the corps was commenced, and within thirty days from that date the corps was practically organized and equipped, and one of its companies had joined the Regular Signal Corps, which was then with the army in Santiago de Cuba. In a number of States local signal corps were so well organized that it only required two or three days to recruit an entire company, and as soon as the quota assigned to each recruiting officer was filled, telegraph orders were at once issued directing him to proceed with his detachment to Washington Barracks, D. C., for equipment and further instructions.

On the day of the passage of the bill the Chief Signal Officer issued the following circular, giving in detail a general plan for the organization of this corps, the number of officers for each organized division, and the pay of the noncommissioned officers and privates:

"CIRCULAR.

"The act of Congress approved May 18, 1898, authorized the President to organize a Volunteer Signal Corps for the existing war. It is provided that each organized division of troops may have two captains, two first lieutenants, two second lieutenants, who will be appointed and commissioned by the President.

"The number of enlisted men with their monthly rate of pay is as follows: Five first-class sergeants, \$54; 10 sergeants, \$40.80; 10 corporals, \$24; 30 privates, \$20.40.

"In addition to the above each enlisted man will receive rations, clothing, and quarters in kind, and medical attendance when required.

"Enlistments are not made by the Chief Signal Officer, but applications must be made to officers commissioned in the corps, whose rendezvous must be ascertained through the agency of the public press.

"No telegrapher will be enlisted unless he presents a certificate from a manager of the Western Union, Postal, or some other well-recognized telegraph organization that he is a competent operator, of high moral character, correct habits, and of such standing that the manager or superintendent signing the certificate would be willing to employ him as an operator in his own office. A similar certificate will be required for electricians enlisted or commissioned.

"Each man must pass a strict examination as to his physical qualifications, which will be determined by the Medical Department of the Army."

The applications for enlistment on file in the Chief Signal Office were examined, tabulated, and arranged according to their geographical district, and, in all cases where recruiting officers were assigned they were furnished with a list of applicants residing in that geographical district, with instructions to communicate with such applicants, giving conditions under which enlistments would be made. The applicants were informed that enlistments in the Volunteer Signal Corps would invariably be made as privates, and promotion to the rank of corporal and sergeant would depend upon meritorious service.

The applicants were required to present a certificate of good character, and in addition thereto telegraph operators who enlisted as such were required to present a certificate from a manager of a Western Union, Postal, or some well-recognized telegraph organization that he was a competent operator and of such standing that the manager or superintendent signing the certificate would be willing to employ him as a telegraph operator in his own office. Similar certificates were required from electricians, and if the applicant was a minor he was obliged to furnish the written consent of his parent or guardian to his enlistment.

The corps was recruited almost wholly by its own officers, and, although without experience in military methods, I was agreeably surprised at the promptness with which this work was performed. Each recruiting officer was directed to enlist a definite number of men; two-thirds of the number were required to be telegraph operators or electricians. In some instances where organized signal corps in different States had been formed, men able to operate the heliograph were considered as telegraph operators.

Realizing the importance of properly prepared food in camp life, each recruiting officer was authorized to enlist two good cooks for his detachment. In the selection of the men the usual regulations governing the physical examination were somewhat modified by authority of the Secretary of War, and recruiting officers were authorized to accept men who, in their judgment, were able to perform the special work for which the Signal Corps was authorized, noting carefully on the enlistment papers any deviation from the standard, as given in the instructions of medical examinations. They were required, however, to satisfy themselves that each man enlisted would be able to perform military duty.

The Volunteer Signal Corps was made up largely of telegraph operators, and had it been necessary to comply strictly with the requirements governing the recruiting of men many excellent men would have been rejected, as telegraph operators, as a class, are usually undersized men. This fact was forcibly shown when the time arrived for uniforming the men. Early in June I made a requisition for 1,000 uniforms of assorted sizes to be shipped to the post quartermaster at Washington Barracks, and upon the arrival of the recruits I found it necessary to return about 400 uniforms, and secure in exchange therefor that number of smaller-sized uniforms, and owing to the promptness with which the officers in charge of the clothing department of the Quartermaster-General's Department acted the exchange of uniforms was effected without any delay.

Immediately upon the arrival of the detachments at the central station, Washington Barracks, I found that it would not be possible to fully equip the first companies for active service with the necessary signal equipments, as the contracts which had been made for the delivery of heliographs and lanterns were not to be filled until after a date when a portion of the forces should be in the field. I therefore requested that sufficient supplies be purchased from the State of New York for the equipment of the two companies furnished by that State. These companies had previously been organized as a part of the National Guard, and the State had fully equipped them with the necessary signal equipments for field work. An officer was ordered to Albany to confer with the State officials and arrange for the purchase of these supplies, and by this means two companies of the Volunteer Signal Corps

were equipped without a day's delay and the companies were enabled to go into the field properly equipped to perform any work which might be assigned to the corps.

This plan for equipping the companies for required work before they left Washington Barracks was uniformly followed, and the fact that each company carried with it in all its movements the necessary equipments for campaign work doubtless contributed largely to the uniform success which has attended the operations of the Signal Corps during the present campaign.

As there was a question as to the manner in which the companies of the Volunteer Signal Corps should be equipped, and realizing the necessity for each company having under its own control the necessary equipments for field work, I organized a board of experienced signal officers, with instructions to report the equipments necessary for each company to insure efficient work upon entering the field. This report was of such service in the equipment of the corps that I include it in this report, in order that it may be available for further use.

"CAMP OF INSTRUCTION, UNITED STATES VOLUNTEER SIGNAL CORPS,
"Washington Barracks, D. C., June 27, 1898.

"In pursuance of instructions from Col. H. H. C. Dunwoody, of the United States Volunteer Signal Corps, a board of officers consisting of Capt. Edward B. Ives, Capt. William H. Lamar, and Capt. Frederick T. Leigh, all of the United States Volunteer Signal Corps, are now at Washington Barracks, Washington, D. C., for the purpose of discussing with a view of recommending the uniform organization and equipment of the Signal Corps companies or detachments.

"The various officers of the corps stationed at this point, and also Capt. Edgar Russell, of the Volunteer Signal Corps, who was casually at the post, were present and took part in the discussion. After mature consideration for the organization and equipment of the companies of the Volunteer Signal Corps, the board reports unanimously as follows:

"First. In regard to company organization: Each company should be divided into eight squads of six men each, remaining seven men to be used for a relief of such men who need it, for special duty as the captain of the detachment requires, for cooking, for clerical work, and for the administrative work of the company generally.

"The organization of each company is to be strictly on the 'squad' basis, the squad being a permanent organization, the members of which will live and mess together, become thoroughly well known to each other, and accustomed to each other's method of work. The selection of those who shall constitute each particular squad shall be the function of the captain, who shall do this according to technical fitness.

"The disposition of signaling equipments and supplies will also conform to the squad organization, and each squad shall be supplied with a uniform set of apparatus so as to enable it to act as an independent organization. The apparatus supplied to each squad is as follows:

1 signal kit with canteen and haversack.	1 heliograph.
1 signal lantern.	1 field telephone.
1 combination telegraph set, main-line	1 compass.
sounder.	1 telescope tripod
1 telescope.	1 field glass.
1 camp stool, for telescope reader.	1 rip saw.
1 crosscut saw.	1 ax.
1 hatchet.	1 splicer.
1 pair climbers.	1 8-inch pliers.
1 "come along" and straps.	1 hand vise.
1 6-inch pliers.	1 small screw-driver.
1 6-inch Baxter wrench.	Assorted screws and nails.
1 large screw-driver.	1 100-foot rope ($\frac{1}{4}$ -inch).
2 clasp knives.	1 bucket.
2 red-light railroad lanterns.	1 hand reel and wire.
2 white-light lanterns, railroad.	5 pounds office wire.
1 ball twine.	1 hand level.
6 pairs blue or smoked glasses.	1 18-inch ruler.
1 cavalry sketch board.	1 engineer's field book.
2 100-foot steel tape lines.	2 field message books.
1 blank book, 8 by 10 inches, 100 pages.	6 lead pencils
2 fountain pens.	25 official envelopes.
2 scratch pads.	25 letter envelopes.
1 packing chest for above apparatus.	

"This apparatus will pack in a box or chest, approximately 54 by 15 by 20 inches, and will, when packed, be in the best possible condition for care and transportation. Only in an emergency, or when the squad is pushing out to the front, and when car-

rying the chest is absolutely impracticable, then such apparatus as they may need may be taken from the box and carried by the men.

"It is to be understood and required that the proper place for this valuable and delicate property, except when in actual use, is in the box. In no other way can these articles be kept from being lost or injured during transportation, distribution, or care.

"In the selection of the equipment mentioned herein, the board has kept in mind that fact that the Department expects to furnish telegraph trains with wagons, apparatus, wire, etc., for building military telegraph lines. The apparatus and tools described herein, however, are such as are necessary for tapping and repairing lines, doing minor work, the construction of temporary lines where telegraph trains would not be available, and for visual signaling.

"It is further recommended that these articles be obtained from the available sources and proper departments, assembled in the prescribed boxes and stored at this post, to be delivered or shipped with company commanders on their requisition. It is deemed, in the opinion of the board, that this property should be so delivered to the company commanders before they start to the front, for the reason that if the property is not in such shape much of it would be lost, injured, or destroyed on account of the inexperience of the officers and men and confusion incident to organizing.

"In addition to the squad equipment enumerated, each company will be supplied with such camp and garrison equipage, stationery, books, blanks, ordnance stored, etc., as may be required. This will be governed by the locality and nature of the contemplated work, and will be supplied on special requisition of each captain, duly approved by the proper authority.

"Two boxes like those supplied to the squad are to be supplied to each company headquarters, in which are carried such miscellaneous and other articles, books, maps, stationery, blanks, etc., as pertain to a company; also one field desk.

"Second. In regard to arms: It is deemed inadvisable to arm the Signal Corps with any arms except the .38-caliber Colt's revolver, model of 1894. As the squads of the corps, when on duty, can always be properly protected by the line troops with which they are serving, it seems unnecessary to arm them. It is also recommended that each man be armed with an engineer's knife in a scabbard. These knives are very necessary in tropical countries in cutting through underbrush.

"Third. The question of the number of men mounted is one that can only be determined by the immediate local provisions. To avoid having any question as to the number of horses and horse equipments allowed to a company, it is recommended that the limit be not less than one for each enlisted man. In view of the amount of property to be carried, and the fact that the company is to be divided, it is recommended that the allowance of transportation of a signal company be three escort wagons. This in addition to the wagons that now constitute a signal train.

"The board respectfully requests that this recommendation, as modified and approved by the proper authority, be embodied in Army Regulations, in order that in considering requisitions for supplies there may be no question as to authority to issue, and in this way promptness in the equipment and supplying of companies will be obtained.

"This action of the board is taken by the advice of a Regular officer of experience in the issue of supplies, who strongly urges that the equipping of the Signal Corps shall, as far as practicable, be covered by succinct orders.

"Respectfully submitted.

"EDWARD B. IVES,

"Captain, United States Volunteer Signal Corps, President."

"WILLIAM H. LAMAR,

"Captain, United States Volunteer Signal Corps, Member."

"FREDERICK T. LEIGH,

"Captain, United States Volunteer Signal Corps, Member."

I forwarded this report to the Chief Signal Officer, with the following indorsement:

"WAR DEPARTMENT, CHIEF SIGNAL OFFICE,

"July 5, 1898."

"Respectfully forwarded to the Chief Signal Officer.

"Inclosed is a recommendation by three of the most efficient officers of the Volunteer Signal Corps, setting forth what is absolutely necessary for each company in order that efficient services may be performed in the field.

"I therefore recommend that the disbursing officer be authorized to supply the equipments named within so far as it may be practicable for at least twelve companies of the Volunteer Signal Corps.

"Each company should be well equipped before taking the field. I am prepared to supply uniforms, arms, tents and cooking utensils, and everything that is authorized by the ordnance quartermaster's supplies, but for the signal equipments, which

are of the most importance, I fear that some delay may be caused by failure of contractors to fill the orders for the signal equipments, and it is of the first importance that the Signal Corps should lose no time in supplying most of these equipments. There may be a few minor articles named in this requisition which can be dispensed with, such as fountain pens, etc.; but what we want are the signal equipments and the necessary articles to enable a signal party to work in the field."

This received the favorable indorsement of the Chief Signal Officer, which follows:

"WASHINGTON, July 7, 1898.

"The Chief Signal Officer appreciates the valuable suggestions made by the members of this board. He desires, however, to give the signal officers of each corps and the captain of each company as free a hand as possible. Any desired equipments will be supplied at as early a date as the article can be obtained. The varied character of signal duties, entailing the management of field telegraph trains, balloon sections, etc., makes it difficult to say what shall be the equipment of any single company. For instance, the Signal Corps officers may desire to have one telegraph train, one balloon section, and one signal company, selecting officers and men for such duty."

I desire to state that in my judgment the liberal view which the Chief Signal Officer announced in the above indorsement, as a guidance to his assistants, enabled me to carry out the plan which I had in mind of fully equipping the companies for work before they left the rendezvous.

The organization had proceeded so rapidly that before June 30 twelve companies had been completely organized, and captains assigned to the commands, as follows: First Company, Capt. Elmore A. McKenna; Second Company, Capt. Howard A. Giddings; Third Company, Capt. Frederick T. Leigh; Fourth Company, Capt. Charles B. Hepburn; Fifth Company, Capt. William H. Lamar; Sixth Company, Capt. Charles S. Conner; Seventh Company, Capt. John B. Inman; Eighth Company, Capt. George W. Butler; Ninth Company, Capt. Edward B. Ives; Tenth Company, Capt. Thomas F. Clark; Eleventh Company, Capt. Carl F. Hartmann; Twelfth Company, Capt. Frank Lyman, jr.

The remaining six companies were in progress of formation, and captains to command were designated as follows: Thirteenth Company, Capt. George R. Gyger; Fourteenth Company, Capt. Charles T. McIntire; Fifteenth Company, Capt. Ambrose Higgins; Sixteenth Company, Capt. Samuel S. Sample; Seventeenth Company (balloon) —; Eighteenth Company, Capt. E. Russel.

The following recruiting stations were established:

Augusta, Me.: Enlistments were made under Capt. George W. Butler, who was authorized to enlist 40 recruits for the Volunteer Signal Corps. Ordered to Washington Barracks June 11. Was the first company to leave this station, June 30, joining the Fifth Corps at Tampa, and accompanied it to Cuba.

Boston, Mass.: Enlistments were made under Capt. Thomas F. Clark, who was authorized to enlist 60 recruits for the Volunteer Signal Corps. Ordered to Washington Barracks June 23. July 8 this company was ordered to Santiago de Cuba, via Tampa, and arriving at its destination was not allowed to land there on account of yellow fever and returned to Tampa, after which, not being allowed to land there on account of yellow fever on the vessel, a large portion of it was sent to New York and afterwards assigned to the Fourth Army Corps, at Huntsville, Ala.

New York, N. Y.: Enlistments were made under Capt. Edward B. Ives, who was authorized to recruit 60 men for the Volunteer Signal Corps. Ordered to Washington Barracks June 23, from which station this company was ordered to Newport News to take steamer, joining the Porto Rico expedition under Gen. J. H. Wilson.

Brooklyn, N. Y.: Enlistments were made under Capt. Frederick T. Leigh, who was authorized to recruit 60 men for the Volunteer Signal Corps. Ordered to Washington Barracks June 23, from which station this company was assigned to the Third Army Corps, at Chickamauga Park. Both the New York and Brooklyn companies were made up of the signal corps of the National Guard of the State of New York, and were almost exclusively made up of telegraph operators.

The third station was that at Albany, where enlistments were made under Lieut. H. G. Opdycke, who was authorized to recruit 20 men.

Hartford, Conn.: Enlistments were made under Capt. H. A. Giddings, who was instructed to recruit 40 men. This company was made up of men from the signal corps of the National Guard of Connecticut, ordered to Washington Barracks, and from this station, June 27, to the Seventh Army Corps at Jacksonville, Fla. Six men were recruited at Fort Trumbull, Conn., completing this detachment.

Newark, N. J.: Enlistments were made under Capt. Carl F. Hartmann, who was instructed to obtain 40 men from the signal corps of the National Guard of New Jersey. Ordered to Washington Barracks June 27, and on July 8 was assigned to the Second Army Corps, under Lieutenant-Colonel Strong.

Philadelphia, Pa.: Enlistments were made under Capt. Ambrose Higgins, who was instructed to enlist 40 men. A greater number had been authorized, but owing to the rapid enlistments it was necessary to cut down the number of men which had been previously authorized in his instructions. Ordered to Washington June 23; from this station the company was assigned to Montauk Point, Long Island, where complete telephone and telegraph lines were erected for the use of troops returning from Cuba, also an electric-light plant which was placed in operation within two weeks after authority had been given for its installation.

Washington Barracks, D. C.: Enlistments were made under Capt. William H. Lamar, who was assigned as recruiting officer of the Volunteer Signal Corps. Recruits were obtained from the signal corps of the National Guard of Maryland, and recruits were enlisted from the States of Virginia and Maryland. He enlisted 55 men, and remained as recruiting officer at the barracks until his company left for the field. A number of men enlisted by him were assigned to other companies. On July 8, with his company, he was ordered to Charleston, S. C., to accompany the Porto Rico expedition, under Gen. J. H. Wilson.

Indianapolis, Ind.: A portion of this company was enlisted by Lieut. Charles H. Martin, who was afterwards transferred to Pittsburg, Pa., where he enlisted a detachment of 15 men. The Indiana company was completed by Capt. Charles T. McIntire, and made up largely of men from the signal corps of the National Guard of Indiana. This company brought with it the signal equipments furnished by the State, which were purchased by order of the Chief Signal Officer. Ordered to Washington Barracks July 2, from which station it was assigned to the Seventh Army Corps at Jacksonville, Fla., where it remained until mustered out.

Columbus, Ohio: Enlistments were made under Capt. G. R. Gyger, of the signal corps of the Ohio National Guard, where he obtained 30 men. Lieut. H. D. Coe was assigned to Cleveland, Ohio, where he enlisted 20 men. Ordered to Washington Barracks July 5. This was the last company to leave Washington Barracks, but detachments were furnished from this company for Montauk Point, Long Island, to aid in the installation of the electric-light plant at Camp Wikoff, and details were also furnished from this company to put in telephonic communications at the hospitals of Forts Myer and Monroe.

Springfield, Ill.: Enlistments were made under Capt. John B. Inman, who was authorized to recruit 20 men. Capt. John W. McConnell, of the same city, was assigned to duty as recruiting officer at Chicago, Ill., where the greater portion of the Illinois company was recruited. Ordered to Washington Barracks June 27. From this station the company was ordered to Chickamauga Park as a part of the signal battalion of the First Army Corps.

Des Moines, Iowa: Enlistments were made under Capt. Frank Lyman, jr., who was instructed to enlist 50 men, largely made up from the signal corps of the Iowa National Guard. Ordered to report to Washington Barracks June 23, from which station the company was ordered to Chickamauga Park and assigned to the Third Army Corps.

St. Louis, Mo.: Enlistments were made under Capt. Samuel S. Sample, who was authorized to enlist 20 men, it being necessary to cut down the number previously assigned as his quota, owing to rapid enlistments. Lieut. W. W. Colt was assigned as recruiting officer at Kansas City, with instructions to enlist 30 men. On July 11 orders were issued directing the Missouri company to report to the Washington Barracks. From this station the company was assigned to Camp Thomas, Chickamauga Park, relieving the signal battalion of the Fifth Army Corps, which had been ordered to Porto Rico.

Smaller detachments were enlisted at Nashville, Tenn., by Lieut. Charles B. Rogan, Jr., who secured a detachment of 20 men; Lieut. J. J. Ryan enlisted 15 men at San Antonio, Tex.; Lieut. A. J. Rudd enlisted 15 men at Fort Snelling, Minn. The men from Fort Snelling were ordered to the Pacific coast for the Manila expedition, as were also 6 recruits from Fort Harrison, and 23 men, in charge of a sergeant, were sent from Washington Barracks, with instructions to report to Major Thompson for duty. Ten telegraph operators were enlisted at Raleigh, N. C., for the Manila expedition. The remaining portion of the two companies organized at San Francisco were made up from recruits enlisted for the service at that point.

The above shows that 820 enlistments were made for the Volunteer Signal Corps under my direction and the remaining portion of the corps was made up of men transferred from the line of the Army, at their own request, and these men were, in almost every case, skilled electricians or telegraph operators.

Immediately upon the arrival of troops at Washington Barracks a school was organized for the instruction of the men in practical work of constructing and operating telephone and telegraph lines. The men were also exercised in cavalry drill, having secured the horses left by the light battery which had recently left the barracks for Manila. Although little time was available for such instructions the recruits made rapid progress in the work. Lectures on the general duties of signal officers, given by those of most experience, were also regularly attended by all commissioned off-

cers at the camp. Telegraph tests as to the efficiency of the men as operators were made at night after the drill of the day, and in some cases competitive tests as to the rate of receiving were made, and attended with enthusiasm, which developed the fact that among these men were some of the best operators in the United States.

Officers receiving appointment in the Volunteer Signal Corps, in most cases, were ordered to report to me at Washington Barracks, where the companies were formed and officers assigned thereto.

The organization of the companies, such as the appointment of noncommissioned officers was, by the direction of the Chief Signal Officer, almost exclusively placed in the hands of the commanding officers of the different companies, although political pressure was frequently brought to bear by those interested to secure preferment in the noncommissioned force.

For the purpose of arming the command, a requisition was made for 500 carbines and 500 revolvers of .45 caliber. This caliber was taken on account of the limited supply of smaller caliber in the Ordnance Department. The carbines were selected as the most suitable arm for mounted troops, and the revolvers were intended more especially for the members of the corps assigned to telegraph and telephone work. The character of the arms of each company was left to the captain commanding the company, but the majority of the companies were supplied with carbines.

In Inclosure A will be found a report showing organization of companies of the Volunteer Signal Corps upon entering active service.

In Inclosure B will be found a narrative report of the organization of each company of the Volunteer Signal Corps, setting forth the qualifications of the men, their previous training and vocation, place of enlistment, character of equipments, and the training received before leaving station for duty in the field.

In Inclosure C will be found a list of the signal equipments and Government property supplied to each company.

In closing this report I desire to place on record my high appreciation of the sterling qualities of this superior organization, including both the commissioned force and the enlisted men, many of whom left lucrative positions in civil life to enter the military service, in which the pay was practically no consideration, while they brought with them that skill and education which enabled them to master with readiness all details of the technical service which they were called upon to perform.

I uniformly found not only a readiness but a desire to master the details of military service. Both officers and men were not satisfied with the usual instructions and practice in signaling, and it was not an unusual occurrence to observe squads of men continuing the exercises after the regular hours for drill.

In the above report I have briefly set forth the plan followed in the organization of the Volunteer Signal Corps, the brilliant services rendered in the field by this organization having been well stated by yourself in the congratulatory order issued on the occasion of the mustering out of the Fifteenth Company, the first to leave the organization after the cessation of hostilities.

Very respectfully,

H. H. C. DUNWOODY,
Colonel Signal Corps, United States Army,
Assistant Chief Signal Officer.

INCLOSURE A.

REPORT SHOWING ORGANIZATION OF COMPANIES OF THE VOLUNTEER SIGNAL CORPS UPON ENTERING ACTIVE SERVICE.

Officers.	Noncommissioned officers.				Privates.	Total enlisted.
	First sergeants.	Ser- geants.	Corpo- rals.	Musi- cians.		
First Company	1				54	55
Capt. E. A. McKenna.						
First Lieut. P. J. Perkins.						
First Lieut. W. W. Chance.						
Second Lieut. C. E. Kilbourne, jr.						
Second Lieut. A. J. Rudd.						
Second Company	5	8	11		29	53
Capt. H. A. Giddings.						
First Lieut. S. M. Butler.						
Second Lieut. Wm. Mitchell.						
Third Company	4	4	5		25	38
Capt. F. T. Leigh.						
Capt. E. W. Winfield.						
First Lieut. Wm. Jarvie, jr.						
Second Lieut. Francis Creighton.						
Second Lieut. H. C. Baldwin.						

Report showing organization of companies of the Volunteer Signal Corps, etc.—Continued.

Officers.	Noncommissioned officers.				Privates.	Total enlisted.
	First sergeants.	Ser. geants.	Corporals.	Musicians.		
Fourth Company		2	4		37	47
Capt. C. B. Hepburn.						
First Lieut. P. W. Crawford.						
Second Lieut. E. C. Lee.						
Fifth Company	5	10	10		30	55
Capt. Henry H. Canfield.						
Capt. William H. Lamar.						
First Lieut. W. F. M. Rogers.						
Second Lieut. Max Wagner.						
Second Lieut. B. O. Lenoir.						
Sixth Company	5	10	10	1	29	55
Capt. C. S. Conner.						
First Lieut. H. D. Coe.						
First Lieut. F. P. Tate.						
Second Lieut. E. E. Bawse.						
Seventh Company	5	7	9		27	48
Capt. J. B. Inman.						
Capt. J. W. McConnell.						
First Lieut. A. G. Thompson.						
Second Lieut. E. N. Gillespie.						
Eighth Company	2	6	7		24	39
Capt. George W. Butler.						
First Lieut. C. E. Walker.						
Ninth Company	5	9	10			
Capt. Edward B. Ives.						
First Lieut. W. Woodard.						
First Lieut. J. D. Wood.						
Second Lieut. W. T. Davenport.						
Tenth Company	5	8	8		30	51
Capt. Thomas F. Clark.						
First Lieut. C. H. Martin.						
First Lieut. H. W. Sprague.						
First Lieut. Don A. Palmer.						
Eleventh Company	4	7	9		36	56
Capt. C. F. Hartmann.						
First Lieut. Hugh Haddow, jr.						
First Lieut. C. D. Chandler.						
Second Lieut. Carl Darnell.						
Second Lieut. B. B. Daggett.						
Twelfth Company	4	11	7		44	66
Capt. Frank Lyman, jr.						
First Lieut. H. G. Opdycke.						
First Lieut. R. B. Oglesbee.						
First Lieut. C. B. Rogan, jr.						
Thirteenth Company	2	4	10		39	55
Capt. G. R. Gyger.						
First Lieut. C. M. Duffy.						
First Lieut. P. J. Reddy.						
Second Lieut. Gustav Hirsch.						
Fourteenth Company	4	10	9		23	46
Capt. C. T. McIntire.						
First Lieut. W. S. Wright.						
Second Lieut. M. H. Baldwin.						
Fifteenth Company	5	10	9		34	48
Capt. Ambrose Higgins.						
First Lieut. Newton Cannon.						
Second Lieut. W. W. Colt.						
Second Lieut. Horace C. Lansing.						
Sixteenth Company	5	10	10		30	55
Capt. S. S. Sample.						
First Lieut. A. G. Thompson.						
Second Lieut. W. E. Davies.						
Second Lieut. W. C. Cannon.						
Seventeenth Company	1	14	10		27	52
First Lieut. L. D. Wildman.						
First Lieut. V. Shepherd.						
Second Lieut. T. R. J. Campbell.						
Second Lieut. C. S. Wallace.						
Balloon		6	1		10	17
Capt. A. B. D. Smead.						
Field Telegraph		1	2		20	23
Capt. C. C. Clark.						
First Lieut. J. P. Wooten.						
Second Lieut. W. M. Talbott.						
Second Lieut. A. J. Dillon.						
Independent					17	17
Capt. D. J. Carr.						
Capt. J. J. Ryan.						
Capt. John W. McConnell.						
First Lieut. R. O. Richards.						

INCLOSURE B.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE VOLUNTEER SIGNAL CORPS

OFFICE OF THE CHIEF SIGNAL OFFICER,
HEADQUARTERS SECOND ARMY CORPS,
Camp George Gordon Meade, Pa., September 12, 1898.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

SIR: I have the honor to submit herewith a narrative report embracing the period from about June 9 until August 7, 1898.

In pursuance of S. O., No. 135, c. s., A. G. O., I opened an office in New York City, my office being the armory of the First Signal Corps, National Guard, New York, which armory was kindly tendered to me by Capt. Homer W. Hedge as a recruiting office.

I was instructed to enlist 50 recruits, and upon completion of this to report the fact to the Chief Signal Officer. In order to expedite the enlistment of these men, I took advantage of the fact that New York City included the boroughs of Brooklyn, Bronx, etc., as well as Manhattan, and also established an office at No. 800 Deane street, Brooklyn, the armory of the Second Signal Corps, National Guard, New York. The use of this armory was tendered me by Capt. F. T. Leigh, signal officer, National Guard, New York, who had received an appointment in the United States Volunteer Signal Corps, and who was also recruiting at the same point. We were authorized to use this armory as a rendezvous until the required quotas were enlisted, when we would proceed to Washington Barracks, D. C. In recruiting men for the Signal Corps I endeavored to obtain as many telegraph operators, electricians, linemen, and electrical engineers as possible, while my instructions required that two-thirds of all men enlisted should be either operators or electricians. I used every endeavor to have all of them such, and I restricted the acceptance of those not thus technically qualified to men who had seen previous service in the Army or National Guard, with three exceptions, two of whom were cooks, and one an experienced hostler, whom I had selected to be instructor for my men in the care of their horses.

I was very much assisted in my work by telegraph and telephone companies, electric-light companies, and the newspapers, all of whom gave their best endeavors to make the desires of the Government known, so that I was enabled to select the men from a large number of applicants.

I was authorized by the Surgeon-General to employ a civilian physician to make the physical examinations, and selected for this purpose First Lieutenant Campbell, assistant surgeon in the New York Signal Corps. He performed this duty very strictly, and I consider the good showing that my company made as regards health and physical condition due to his care.

Upon completing the enlistment of 50 recruits, I reported the fact to the Signal Office, and was authorized to enlist 10 more telegraph operators, if possible. This I succeeded in doing without any trouble whatever. The company as recruited consisted of about one-third telegraph operators, one-third electricians and linemen, one-sixth men who were not only telegraph operators, but also electricians and linemen, and one-sixth ex-regulars and ex-members of the New York National Guard. Many of the telegraph operators and electricians had had previous military experience in the National Guard. I can only approximate in this, for the reason that I have not access at present to the company papers.

Each applicant for enlistment was required before he was accepted to present a certificate of good character from his employers, and a certificate from the manager of the Western Union, Postal, Bell Telephone, or an electric light company that he was a man of such capacity and qualifications as would satisfy their requirements if he sought employment with them. These certificates were all attached to the enlistment papers, and are now on file in Washington. In addition to these enlistments, there were three special enlistments by order of the Chief Signal Officer, viz, Andreae, Spratt, and Lumb. Spratt and Lumb presented themselves with a statement that they were to be enlisted as sergeants. To this I demurred, and after considerable discussion they agreed to enlist as privates, subject to my approval, their appointments as noncommissioned officers being subject to my future approval, I having insisted that when my company should take the field and go to the front that I had the right and power to reduce to the ranks any noncommissioned officer whom I deemed unfit to hold that position, and that as they were without technical skill as telegraphers or electricians and without previous military experience, that I could not consider them as capable noncommissioned officers. I would state, in parenthesis, that Lumb and Andreae were transferred from my company, and that Spratt proved himself subsequently in every way qualified to act as a sergeant.

About the 25th of June I proceeded with my detachment to Washington Barracks, and was there organized as the Ninth Company of the United States Volunteer Signal Corps. During the period of June 9 until June 25 the detachment was quar-

tered in the armory of the Second Signal Corps, No. 800 Deane street, Brooklyn. Those men who so desired were allowed to take their meals and live at home. Those who did not were quartered in the armory. The routine of company work was established, and two drills a day in signaling and in the school of the "soldier dismounted" were required, at which all the men who were enlisted had to be present. Captain Leigh, the commanding officer of this armory, deserves thanks for this very convenient offering of his quarters. It caused his men to be crowded and inconvenienced, but he cheerfully and willingly did everything he could to make the men comfortable, and assisted me in getting my detachment into military shape.

After I arrived at Washington Barracks my instructions were to proceed with my company to Santiago de Cuba, but there being some delay in the furnishing of equipments, I was instructed to proceed to Albany, N. Y., and purchase the signal property pertaining to the New York Signal Corps. With this equipment I was ready for duty at the front. When I returned from Albany a number of my men had been transferred to Captain Russel's company, with orders to proceed to Manila, and their place was taken by an Ohio detachment of 20 men, who had just arrived at Washington Barracks under command of First Lieutenant Coe. I knew nothing of these men and was a little anxious at first, fearing that they would not be of as high an order of technical and other merit as the men whom I had brought from New York, but they proved to be first-class—First Lieutenant Coe having selected them himself, and being an officer well-fitted for his duties. First Lieutenant Woodard and Second Lieutenants Davenport and Wood were assigned to my company as lieutenants. Lieutenants Coe and Davenport were telegraph operators. Lieutenant Woodard was not only a telegraph operator, but an electrical engineer of considerable experience. Lieutenant Wood was without previous experience, military or technical.

Upon the 4th of July I left Washington Barracks with my company and proceeded to Newport News, Va. From there my orders were to go by the first transport to Santiago de Cuba and report to Major Greene, chief signal officer of the Fifth Army Corps. Up to that time my company had been taking their meals with Captain Leigh's company, and when the time came to leave there was no way of making an equitable division of the rations, owing to the fact that the bread and meat rations were issued daily, the ration return having been signed for several days ahead. The post commissary was ill and unconscious and there was no commissary sergeant, the civilian clerk of the commissary being absent on a holiday. I therefore had to proceed without any rations whatsoever—travel, or otherwise. Fortunately, I had on hand about \$100 left over from funds which had been invoiced to me when I was recruiting officer in New York City. I took the responsibility of using this money to purchase meals for the men until I could draw rations at Newport News. Having arrived there, the company went into camp to await the departure of the transport, *La Grande Duchesse*, which was being prepared for service. During this period the men were instructed in the routine of camp duty, the methods and importance of hygienic and sanitary precautions, and were also drilled twice a day in the school of the "soldier dismounted" and in signal drill. In due time, about the 7th of July, we boarded the transport, at the same time turning in our property for shipment. We sailed from Newport News on the following day and proceeded to Charleston, S. C., where additional troops were to be loaded on the steamer. During every day of the trip there was theoretical instructions and signal drill. The cabins and quarters of the men were regularly inspected and every effort made to impress upon them the necessity of scrupulous cleanliness and carefulness in diet. They were assigned in squads to various lifeboats and instructed what to do in case of impending catastrophe. They were regularly bathed in squads, the water being played over their bodies from a hose. I would state in this connection that no relaxation as regards cleanliness and hygienic methods was ever allowed, no matter how hard worked or tired the men might be, and I am glad to be able to report that they cheerfully acquiesced in this at all times, even when they were almost physically exhausted with hard and unaccustomed work, and to this cheerful subordination on their part must be given the credit for their healthy condition, from the time they left Washington Barracks to the time I left them in Porto Rico, on August 7. After our arrival at Charleston, S. C., orders were received holding the transport at that city until further orders; then came instructions that the ship was not to go to Santiago, but was to go to Porto Rico. As the orders for the Ninth Company took them to Santiago, and as the property belonging to that company was buried under a thousand tons of general stores, and as the indications were that the Ninth Company was to be ordered ashore to take some other transport to Santiago, and as the weather was intensely hot, I was caused much anxiety lest I might be required either to be separated from my property and equipment, or compelled to handle the entire cargo of the vessel in order to get our signal property. For this reason, Santiago having capitulated, I felt justified in asking that my orders be changed and that I be sent with my command to Porto Rico. My orders were so changed.

During the time my company was in Charleston I am proud to report that the conduct was most exemplary. They had five consecutive hours' drill daily at visual signal work, the object being to accustom to the long-continued transmission of messages and the resulting strain that would follow upon nerves and eyesight. The rest of the time I gave them all the liberty I could, they living on board the ship, and found that I had no reason to regret so doing. The members of the company were the recipients of much hospitality from the citizens of Charleston, which took the form principally of offering food and drink indiscriminately. The men, however, had learned by this to look out for themselves, and there was not as much sickness as I had feared. We had some, owing to the drinking of ice water and overindulgence in melons and other fruits. Just before sailing, the surgeon on board of the ship reported that First Lieutenant Coe was suffering from a very high fever, typhoid being suspected. There was no time to consult the Department, so I took the responsibility of ordering him ashore, and detailed First-Class Private Brubaker to attend him. We had just time to get these men off the ship when it sailed. I regretted losing Lieutenant Coe very much, as he had up to that time had charge of the property, was a good signal officer, and a man both careful and industrious. The journey from Charleston to Porto Rico was without incident. Toward the latter part of the trip there was considerable suffering, due to the lack of good drinking water, which was brackish, owing to the condensers having broken down to an extent that allowed salt water to leak in. When off the eastern coast we were hailed by the U. S. cruiser *Columbia* and instructed by order of Major-General Miles to Guanica, a point about 20 miles west of Ponce. At Guanica we remained only long enough to unload some of the horses, and then proceeded to Playa de Ponce, where the final disembarkation was to take place. There the command went ashore and established a camp at the landing hut of the English Panama Cable Company. When the *Grande Duchesse* arrived off Ponce, information was received that the stores on board were not to be delivered at Porto Rico, but were to be sent on to Santiago. This necessitated overhauling the entire cargo to get at the property pertaining to the signal company. This exhausting and laborious work was done almost entirely by the Signal Corps. It was very important that we should get all of our supplies. Unfortunately, we did not. A part of our ammunition and property was overlooked, and just as the ship sailed a report was sent me that some of it had been found. From Charleston, south, the ship was very much crowded. Five men were assigned to each stateroom, and the necessities of all kinds were inadequate, so that the discomforts of the men were extreme. Notwithstanding this they were cheerful and willing to do more than their share of the labor that fell upon them. They performed guard duty in addition to drill and technical instruction. This was made necessary by the fact that the volunteer regiment which accompanied us on the trip was undisciplined, and contained petty thieves. We had landed at sunset. The next morning, without waiting instructions, visual signal stations were established. One on top of the custom-house, which was right at the wharf, and in which General Miles had established his headquarters, and other stations upon such of the transports as were being unloaded. It was found that the swinging of the vessels, with the changing of the tide, caused signaling to be impossible to some of the ships that were farthest out at sea, they becoming screened by those nearest shore. It therefore became necessary to establish an auxiliary station on the Light-House Island at the entrance of the harbor, which was used to relay the messages to the ships which could not be communicated with directly. The work done by these signal stations facilitated the disembarkation, in that the naval officers detailed to superintend the work could be immediately notified when the lighters at the ships were loaded or when empty lighters were required at the ship's side. There were a number of these lighters captured from the Spaniards when our command entered the harbor, but the only means of taking them to and from the shore were the steam launches of the men-of-war, of which there were only three in service. It therefore became necessary that the time of these launches should be fully occupied, and that they be constantly employed either in getting empty lighters to the ships or loaded lighters from the ships to the shore. This work was managed by a Lieutenant of the Navy, detailed for that purpose, and was facilitated by the Signal Corps, which enabled him to communicate instantly with any transport. These visual stations were under the charge of Second Lieutenant Wood, and the details of the work were left entirely to him.

The telegraph offices were under charge of Second Lieutenant Davenport, Ninth Company. Telegraph offices were established at the following points the day after we landed: General Miles's headquarters, the cable office, the cable hut on the east shore, where the Ninth Company was camped, the town of Ponce, General Wilson's headquarters in Ponce, the railroad station in Ponce, the town of Yauco, one or two temporary intermediate stations, between Yauco and Ponce, for the convenience of the troops marching from Yauco to Ponce, which stations were abandoned when these movements were completed. There was also a station at Guanica. The Ninth

Company furnished operators and messengers for General Miles's headquarters, the cable office, and company camp. It also furnished a few operators scattered among the other offices, which offices, however, were principally manned by details from Captain Lamar's company. The station at Guanica was manned by a detail from Captain Clark's signal train. The line from Guanica to Yauco was a military line, on lance poles, built by his company; the rest of the lines were the Spanish Government lines repaired and put in order. Lieutenant Davenport, Ninth Company, had charge and supervision of all these lines, with a detachment organized after the manner of the commercial telegraph companies. He had his chief operator, his chief lineman, and assistants, all with their duties succinctly specified. As in the case of Lieutenant Wood, the instructions given him were general in their nature and the details were left entirely to him to work out upon his own responsibility.

I would state in parenthesis that when I first took command of the company I performed the duties of captain, lieutenant, first sergeant, company's clerk, and everything. I found, however, that this arrangement would not do, that the officers, noncommissioned officers, and men, all seemed to rely upon the captain's taking the initiative in the most minute particulars, so that the discipline and efficiency of the company was not progressing as rapidly as the intelligence of the men would warrant me to expect. I therefore made up my mind to assign the different branches of the work to the officers and noncommissioned officers, and allow them to act more on their own responsibility. The result was that, while some of the work was not done possibly as well as I would have wished, yet in the end the result was much better than I was accomplishing by doing all the work myself, and I found that by correcting mistakes little by little, by changing things slightly from day to day, and by giving instructions in small quantities, the improvement, though gradual, was permanent, and the self-reliance and industry of the officers and men materially strengthened.

It gives me pleasure to state in this particular that during the entire time I was in command I did not find it necessary in a single instance to speak a harsh word to either officers or men. The charge of the company camp at the cable hut was put in the hands of First Lieutenant Woodard. His duties were to see that the camp was kept clean, that hygienic principles were enforced, that the meals were well prepared and promptly served, that the discipline was good, the property well cared for, and the requisitions for men by Lieutenants Wood and Davenport would be promptly filled by members of the command whose technical attainments were best suited for the work which they would have to do. For this purpose Lieutenant Woodard remained in camp all the time, there being occasions when there was no one there but himself, the first sergeant, and cook. I do not remember of his leaving camp once to visit the town of Ponce to see the sights, to visit officers, or to take advantage of any of the possible relaxations which come from time to time to soldiers in the field. He performed his duties cheerfully, conscientiously, and with industry, though he, of all the command, was the one who might have had cause for complaint. His work was hard, arduous, and made no ostensible show whereby he could have the gratification of obviously accomplishing results. The skill and tact with which he performed this duty and the justice with which he apportioned the work among the various details of men had much to do with the successful administration of the company, and in leaving it in his command I felt absolute confidence that things would go on smoothly and effectively. If there is a possibility of promoting him he will prove a valuable officer, being a civil engineer by profession, a telegraph operator, and a man of executive ability above the average. All the officers of the company were temperate in the use of stimulants.

My duties during this period consisted in keeping a general supervision over the entire company and endeavoring to find out and anticipate the requirements of the command. The Signal Corps started into this war with a burden upon it of having to prove the necessity of a signal corps. This was a great disadvantage, in that it required an ambitious officer to anticipate where the services of the corps might possibly be required, and involved the expenditure of much labor which subsequently was proved to be unnecessary. At the same time this labor was not to be regretted, in that from the first it trained our men to habits of industry and thoroughness, and will result, in my opinion, in the development of a substantial lot of soldiers suitable as candidates for a permanent corps should this branch of the service be increased hereafter.

The telegraphic and electrical work done by the company consisted in putting up an independent circuit from General Miles's headquarters to the cable office. This was done with a view of requiring all the cable messages to be filed originally with the Signal Corps and tended to help us to retain absolute control of the cable messages. All cablegrams were received at headquarters and were telegraphed to the cable office, and from there sent out of the country. We had an all-metallic open-circuit system for the work, and the circuit was used for no other purpose. The

other telegraphic line was worked on the closed-circuit system. Starting from a gravity battery at the cable office it passed through the cable hut, thence to army headquarters, then back to the cable hut, thence back to the cable office, thence to a battery at Captain Lamar's company barracks at Ponce, thence to General Wilson's headquarters, thence to the railroad station at Ponce, thence to Yauco, and thence through battery at Guanica to ground. From the cable office to Ponce we used the old Government line repaired. From the railroad station to Yauco we used partly the railroad and partly Government wires. From Yauco to Guanica we used a field line put up with lances by Captain Clark's company. The telephones were not used much, only when the lines were too bad to work the telegraph, and for advance and scouting parties. It was replaced by the telegraph as soon as possible. In visual signaling we used all the apparatus furnished except the torch. The torch was never used at all. At night we found the flash lantern or two ordinary railroad lanterns perfectly satisfactory. We used one lantern for footlight and swung the other from right to left and the reverse, so as to make letters according to the Myer code. For short distances this could be done with one hand. For longer distances the lantern was passed from hand to hand as it swung past the center, and for extreme distances the operator stepped to the right as far as he could when swinging to the right and to the left when swinging to the left. The flash lantern, however, was the most satisfactory at night and the heliograph in the daytime. Strict discipline soon made the men exact and particular in preserving the adjustment. The navy, however, were not prepared to read it readily, and in most cases called for the flag.

At this point I would state that each company should be provided with two sets of international code flags and two international code books. These latter should have an appendix added for such military messages as would most likely be sent. We were at a disadvantage in not being prepared to communicate with the navy by means of their code. The code book, by means of the abbreviations used, would shorten enormously the time of sending messages by the signal flags. Since messages sent by flag were not being paid for, there was no way to make the writers condense, and valuable time was taken up in transmitting useless verbiage; at the same time none of us cared to take the responsibility of editing and condensing any of the messages given us to transmit.

The conclusions I have drawn from what I have seen and experienced are as follows:

That paragraph of the law which provides that each division shall have two captains, two second lieutenants, etc., has resulted in a misunderstanding. Each division commander seems to look upon a signal company as part of the effective force of the division, whereas circumstances may require that one division shall be served by almost two companies, while another division may be amply served by a small detachment. It should be well understood that all the signal companies of a corps should be under the immediate jurisdiction of the chief signal officer, and that the commanding general of the corps shall assign companies or detachments to the division as seems best according to circumstances. Where the division is independent it should have a signal company actually attached to it, but otherwise its signal force should be governed by the existing conditions. It is these same existing conditions which regulate the equipment of a signal company or detachment, and no fixed rule can be made to establish a uniform of a company. The efficiency shown by my company at Ponce was due to the fact that its equipment was meager as far as horses and transportation were concerned. As a result of not having horses, mules, or wagons to care for, my entire company could be assigned to duty as signalmen, telegraphers, and linemen, while other companies had almost all they could do to look after their animals and transportation. Nevertheless, Captain Lamar's company was able to show especial efficiency owing to the fact that he was well provided with horses and wagons, so that while he had few men handy doing signal work, yet his company, as an organization, did valuable service. This made obvious the fact that equipment was determined by surroundings. To accomplish this, however, necessitated that I, who was senior to him, should assume the work and duties of a junior, as we were in the beginning both attached to General Wilson's division, and as the senior signal officer present I had the right to take charge of the more immediate work around headquarters, which I could not have done and gotten the best results from the two companies.

There was no friction whatever, but from my experience as an officer in the Army I can state that the possibility of friction and poor service resulting therefrom were very obvious, and I was anxious about the matter all the time that this condition existed. When Lieutenant-Colonel Reber arrived my company, Captain Clark's signal train and Captain Lamar's company were consolidated under Colonel Reber's command, the resulting organization being very satisfactory to all but General Wilson, who opposed the taking away "of my signal corps." There is no question but that he should have had a signal detachment, possibly an entire company, or

even more than a company, but men and material should have been furnished him by Colonel Reber, who could have selected both, according to the necessities of the prospective signaling about to be done.

I concluded from all this that the chief signal officer is the individual who should command the organization and storehouse, where most of the supplies can be kept to be issued to the companies in such quantities as the immediate work requires. The question of the supplies and equipment of a signal corps is one requiring thought, and which can not be overlooked or slighted. We lose sight of the fact that the Signal Corps may be considered to consist primarily of property and incidentally of men, in that it is the material and apparatus which is indispensable to the proper performance of their functions. The tendency on the part of the commanding officers and others is to overlook this. Results are expected simply from the presence of men with cross flags on their hats, irrespective of what apparatus they may have with them, it being so easy to say, "Let a flag be improvised." A number of signalmen not completely supplied and equipped is no more a signal corps than artillerymen without cannon are artillery, or cavalymen without horses are cavalry. Another point is that military instructions and preparation in time of peace should include a thorough appreciation of the importance of a signal corps. It is impossible that this branch of the staff should accomplish its best results unless commanding generals appreciate its usefulness. The chief signal officer should be thoroughly posted in advance of intended movements, so that important locations can be connected to headquarters as soon as occupied. It is a mistake to have to wait until an important point is occupied by troops before commencing preparations for establishing communications with it.

In regard to the arms: We found carbines a source of trouble without any prospect of an opportunity to use them. All the other officers commanding companies agreed with me in this and considered that the only firearm suitable for signalmen was the pistol. Lieutenant Coe's Ohio detachment brought with them a number of bowie knives and scabbards. These proved to be most serviceable in many ways, and I would recommend that each signalman carry such an instrument. They are indispensable in clearing away underbrush and freeing the electric wires from "grounds."

In regard to equipments: The electrical and visible equipments furnished the Signal Corps are everything that could be desired. The torch, however, is unnecessary and its use should be discontinued. It is heavy and takes up valuable space. For the care of the smaller tools, visual apparatus, etc., it is indispensable that each company should be provided with six or eight packing boxes, these to be uniform and to be filled each with a complete set of tools and apparatus necessary to completely equip a signal station. I was unprovided with these boxes, while Captain Lamar had succeeded in obtaining them, so that it was possible to compare the work of the two companies, one having them and one not having them. It is almost impossible to avoid losing the smaller articles unless such boxes are provided, each with an inventory of its contents marked on the inside of the lid.

In regard to transportation: The amount is regulated by the amount of property which each company may be called upon to carry along with it. As this is regulated by circumstances, I would recommend that the transportation be furnished to the chief signal officer, who apportions it out among the different companies according to their actual need. The same reasons govern this as those regulating the equipment.

In regard to the number of men who should be mounted on horseback: I am opposed to any being mounted except the five first-class sergeants. To have more horses takes away men who can be better employed in actual signal work than in the care of horses. Further, it is an inducement to throw upon the signal companies more than their share of orderly work.

In regard to bicycles: They are very valuable in some cases and of no use whatever in others. Where an army corps is consolidated in camp or is in a country provided with good roads, at least five to each company is none too many.

In regard to drill and instruction of a signal corps: The rules and principles laid down in Myer's Manual can not be improved upon.

In regard to the personnel of the Signal Corps: The legal requirements that two-thirds shall be telegraph operators or electricians is just about right. Electricians seem to be of a class naturally ingenious, and make good all-around men. Many telegraphers can be obtained who are also electricians. The remaining one-third will furnish the necessary cooks, clerks, stenographers, teamsters, and hostlers which are necessary to each organization, but what is most essential of all is that every man before going into active service shall be a soldier. Every day since I have been in the volunteer service I have been more and more impressed with the fact that it is absolutely impossible to do soldiering without soldiers, the general impression of the American people to the contrary notwithstanding. There seems to be four stages in the passage from a recruit to a soldier: First, when he puts on a

uniform and thinks himself a soldier; next, when he has seen a little drill and looks like a soldier; third, when he begins to act like a soldier, and finally when he thinks like a soldier. Until he reaches the latter condition he is not fit for anything from a military standpoint. He is a care on the officers who know their business and a source of danger to himself and those in his vicinity. For this reason it will be essential in time of peace to have a highly trained Signal Corps capable of being enlarged to the requirements of war. Their pay must be high to attract the proper technical skill. They must be thoroughly instructed in military requirements and drilled to a high degree of efficiency. From what I have observed in actual service and from my experience as professional electrical engineer, I am convinced that the Signal Corps should be officered by men of talent and attainments above the average.

In regard to the organization of the Signal Corps: The present one is admirable in all particulars but one. It is for some reason impracticable to have two captains to a company. I can give no arguments theoretically against it, but observation has convinced me that it simply does not work and seems to be a cause of trouble and heartburning.

Very respectfully,

EDWARD B. IVES,
*Lieutenant-Colonel and Chief Signal Officer,
Second Army Corps.*

OFFICE OF THE CHIEF SIGNAL OFFICER,
HEADQUARTERS SECOND ARMY CORPS,
Camp George Gordon Meade, Pennsylvania, October 3, 1898.

Gen. A. W. GREELY,
Chief Signal Officer, U. S. A., Washington, D. C.

SIR: I have the honor to submit to you the following narrative, as a report of the organization of the Eleventh Company, United States Volunteer Signal Corps. I was commissioned on May 20, 1898, captain in the Volunteer Signal Corps and qualified on June 1.

On June 9, 1898, by Special Order 135, A. G. O., Washington, D. C., paragraph 13, I was assigned to duty as recruiting officer for the Signal Corps at Newark, N. J. There being no medical officer available at Newark, I asked authority from the Surgeon-General of the Army to employ a civilian physician and was authorized to do so by telegraphic orders on June 11, 1898. By direction of the Chief Signal Officer, I was authorized to enlist 35 men, at least two-thirds of which number should be telegraph operators or electricians. I enlisted the first of these men on June 13. On June 25 I had secured the last man. I then requested authority to enlist three more men who had applied to me, and received the necessary authority. These men were sworn into the service on June 27. These 38 men were selected from over 125 applicants.

While other officers in the Signal Corps also assigned to recruiting duty secured a greater number of men in the same time, I have always felt that I have been repaid for the care in which I selected the men by the way in which they have performed the duties required of them.

I had obtained for use as a recruiting office a large hall and two adjoining rooms owned by Marcus L. Ward Post 88, G. A. R., which had been used by the Provisional First Signal Corps of New Jersey, of which I was then captain, as its armory and drill hall and where appliances for visual signaling were kept. Telegraphic instruments were set up and connected, and likewise telephone instruments, which were also taken apart and then reconstructed for the instruction of the recruits. Every applicant for enlistment, before being examined, was required to produce a letter of recommendation from either the Western Union or Postal Telegraph Company, or other reliable and well-known institution or firm, setting forth his qualifications and his ability, either as telegraph operator or electrician, and stating that they would be willing to employ him in their own establishment. This was done pursuant to instructions from the Chief Signal Officer, with the result that the men obtained were as carefully selected and came as well recommended as one usually takes into his own personal employ. This care brought fruit when, several weeks later, the men were required to construct and operate telegraph and telephone lines, which they did in a satisfactory manner, without unusual effort or friction.

On June 16, 1898, by Special Order 141, A. G. O., Washington, D. C., First Lieut. Hugh Haddow, jr., was ordered to report to me in person at Newark, N. J., for duty. Lieutenant Haddow was then first lieutenant in the Provisional First Signal Corps of New Jersey. While at Newark, and until the full quota had been recruited, as many of the men as desired were permitted to go to their homes for meals. Very few took advantage of this offer, and most of them received their meals at a restaurant in the vicinity of the recruiting station. The meals furnished were paid for by the Subsistence Department at the rate of 25 cents per meal, and were clean, wholesome, and well cooked. The men were marched to the restaurant and back in two

detachments, each in charge of an acting sergeant. A number of the men were also quartered by me nightly at an expenditure of 25 cents per night, which was paid by the Quartermaster's Department. Of the 38 men enlisted by me, 29 were either electricians or telegraph operators, a little more than half of this number being electricians. One also enlisted as a cook.

On June 28 I received telegraphic orders directing me to proceed with my detachment to Washington Barracks, D. C., in consequence of which I left Newark the following morning (29th) and arrived at my destination on the afternoon of the same day. The barracks being extremely crowded at that time and the weather being very warm, the second day after my arrival I drew tentage for my detachment and we went into camp, my organization being the only one that lived in tents at the barracks until my departure from there for Camp Alger, Va., on July 13, at which time I transferred my camp to Capt. Ambrose Higgins, and received from him in exchange an equal number of tents, he being enabled thereby to move into a camp already established. On July 8, 1898, First Lieut. Charles De Forest Chandler was assigned to duty with my company.

On July 10 First Lieut. Henry G. Opdycke, who had recruited 18 men at Albany, N. Y., reported at Washington Barracks with his detachment and was assigned with his men for duty with my company, which had been designated as the Eleventh Company, by order of the Chief Signal Officer. On July 13, Lieutenant Opdycke was transferred to Captain Lyman's Company; his men, however, remained with my company, which then had a total strength of 56 men. Of the men enlisted by Lieutenant Opdycke, 13 were telegraph operators, 1 stenographer, 1 photographer, and 3 electricians.

While at Washington Barracks the men were drilled daily in the use of visual signals, received some instructions in guard duty and other duties pertaining to the life of a soldier, and were taught how to ride and care for horses. They were uniformed and received their personal equipment, such as haversacks, canteens, knives, forks, spoons, meat cans, bed sacks, shelter-tent halves, blankets, and ponchos, and 25 carbines and 30 revolvers, which were distributed among the men, the noncommissioned officers receiving the revolvers.

July 11 I received orders to proceed with my company to Camp Alger, Va., which I did on July 13.

August 15, while at Camp Alger, Va., Second Lieuts. Carl Darnell and Byron B. Daggett, pursuant to Special Order 191, A. G. O., Washington, D. C., reported to me for duty, while I was acting chief signal officer of the Second Army Corps, and were by me assigned to duty with the Eleventh Company.

As signal equipments of every kind that might possibly be required for visual signaling, as well as for telegraphic and telephonic constructions, had been sent to the chief signal officer attached to the Second Army Corps at Camp Alger, Va., my company took with them no signal equipments from Washington Barracks, except two heliographs and some telescopes.

The equipment furnished us after we reported for duty with the Second Army Corps was certainly, both in quality and quantity, such as to enable the Signal Corps to maintain operations under all sorts of conditions. Three battery wagons were to be used as portable telegraph and telephone offices during time of action in the field, a wire reel wagon loaded with four strand insulated wire, which can be laid upon the ground, over roads, and through streams, and communication over which would not even be interrupted by the passing of wagons over the same, field instruments to be operated in connection with this wire, all material and tools necessary for the construction and operation of military lines, and every kind of appliance for visual signaling, both day and night, from the now obsolete signal torch to the acetylene gas lamp of the latest model, and while this property formed a great bulk when concentrated in one place, by judicious distribution among detachments it can readily be moved from place to place to which the detachments may move.

Thirty-five horses were assigned to each company of the Signal Corps. This number is far in excess of the number of horses which the Signal Corps could use to advantage; fifteen or twenty horses at the most being enough for any one company. The care and attention required for the extra horses impairs the efficiency of the Signal Corps companies.

The only thing which was possibly lacking in our equipments was a wagon or truck suitable for the rapid transportation of lance poles used in the construction of the military lines. We used for this purpose an ordinary army wagon, and, being too short, the tail board had to be removed, with the result that whenever the wagon was hauled on an upgrade, the lance poles were certain to slide out of the rear end. The wire-reel wagon was faultily constructed to some extent, but these faults were readily overcome by changes made under my direction, an account of which is contained in separate report heretofore rendered by me. Some slight changes were also necessarily made by us in the fitting of the battery wagons. The necessary material

for establishing an incandescent electric-light system for 50 lamps was also a part of our equipment, the lights being put in the headquarters tents by the signal corps.

Trusting I have not been too brief in the matter of this report, I have the honor to remain,

Very respectfully,

CARL F. HARTMANN,
Captain, Signal Corps, United States Volunteers,
and Acting Chief Signal Officer.

WAR DEPARTMENT, SIGNAL OFFICE,
Jacksonville, Fla., August 25, 1898.

CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: In compliance with instructions from your office, I have the honor to make the following report upon the organization of the Second Company, United States Volunteer Signal Corps:

I was assigned to duty as recruiting officer for the Volunteer Signal Corps at Hartford, Conn., by S. O. 135, H. Q. A., June 9, 1898, and between June 9 and June 16 enlisted 26 men, many of them members of the Connecticut Signal Corps.

On June 17, 1898, in accordance with S. O. 141, H. Q. A., June 16, 1898, I proceeded to Fort Trumbull, Conn., to which post recruits had been sent each day as enlisted, and started with detachment for Washington Barracks, D. C., at which post I arrived on June 18.

Subsequently my company was filled to the maximum by assigning to it recruits enlisted at Washington Barracks by Captain Lamar, and at New York by Captain Ives, and at Brooklyn by Captain Leigh.

While at Washington Barracks the company was uniformed and equipped and instructed in the rudiments of signaling and military drill. The men were all armed with Colt .45-caliber pistols. The signal equipments consisted of the articles prescribed by your office for each company of the Signal Corps.

The company left Washington Barracks July 3, 1898, for Jacksonville, Fla., arriving on July 4, for service with the Seventh Army Corps; this in accordance with letter from Adjutant-General of the Army, dated June 27, 1898.

The officers attached to the company are Capt. Howard A. Giddings, First Lieut. Samuel M. Butler, and Second Lieut. William Mitchell.

A roster* of the company, with complete data, is inclosed herewith.

Very respectfully, your obedient servant,

H. A. GIDDINGS,
Captain, United States Volunteer Signal Corps, Commanding Second Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE FOURTH COMPANY.

SIGNAL CORPS, UNITED STATES TROOPS IN PORTO RICO,
Ponce, Porto Rico, September 19, 1898.

Respectfully forwarded to the Chief Signal Officer, United States Army.

The Fourth Company was formed of men enlisted for the United States Volunteer Signal Corps from time to time at Camp George H. Thomas, Ga., during May and June, 1898, or of men transferred from regiments of volunteers to the United States Volunteer Signal Corps during those months. These men have been attached to the detachment of Signal Corps, United States Army, at Camp Thomas. Until July 11, 1898, those men (43) were assigned by order No. 6, Signal Corps, First Army Corps, as Fourth Company to the command of Captain Hepburn. Subsequently assignments of men were made to the Fourth Company to fill it to the authorized complement. During their stay at Camp Thomas they were instructed and drilled in Signal Corps duties, signaling, field telegraph, etc., until their departure thence, July 23, 1898, for this island. Instructions and practice were also maintained when the men were not otherwise engaged on this island until departure on September 13, 1898, for the United States.

W. A. GLASSFORD,
Lieutenant-Colonel and Chief Signal Officer, United States Troops in Porto Rico.

* Omitted.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE TENTH COMPANY.

CAMP WHEELER,
Huntsville, Ala., August 23, 1898.

CHIEF SIGNAL OFFICE,
United States Army, Washington, D. C.

SIR: Replying to your favor of August 13, 1898, through Col. H. H. C. Dunwoody, would say that the following is the desired information:

Previous to my reaching Boston, Mass., the recruiting for the Signal Corps was in charge of Lieutenant Chase, at 37 Kneeland street, Boston, who had enlisted 5 telegraphers and 2 electricians. When I opened recruiting office at East Armory, these men were transferred to my detachment June 21, on which day I began enlistment which was completed on Saturday June 25, with 65 men, their qualifications being as follows: Twenty-nine telegraphers, 8 linemen, 3 laborers, 9 signalmen, 2 electrical engineers, 7 electricians, 4 stewards, 2 civil engineers, and 1 stereotyper.

On Monday morning, June 27, we were furnished with a canvas working uniform and campaign hat by the State of Massachusetts, and in the evening of the same date at 6.30, with Lieut. H. W. Sprague, left for Washington, arriving there and reporting to post commander at 4 p. m., June 28. We remained in barracks until July 11, furnishing all necessary details and drilling on marching maneuvers and signaling, wigwag, heliograph, and telegraphing. During this time the following changes were made: We lost 1 telegrapher by transfer to Washington District Company, also on same date by transfer, 9 men to the balloon detachment, 6 linemen, 1 telegrapher, 1 electrical engineer, and 1 laborer. On July 9 we lost by transfer, 1 telegrapher, and gained by same 1 signalman from the District Company.

We received a first-class Signal Corps outfit, including heliographs, flags, torches, telegraph instruments, tents, cooking utensils, and personal equipment for every man. On July 11 we gained by appointment First Lieut. Charles H. Martin and Second Lieut. Don A. Palmer, and Second Lieut. H. W. Sprague was promoted to first lieutenant. Accompanied by these officers and full quota of 55 men, we left Washington at 11.15 a. m. Monday, July 11, and arrived in Tampa, Fla., 8.20 p. m. July 12, remaining on board the train that night. The following morning we pitched camp behind the Tampa Bay Hotel, Capt. J. E. Brady commanding.

While here the men were drilled in signals at every opportunity. A supply of khaki uniforms and 60 hammocks were drawn anticipatory of the Cuban expedition. On July 19 we were joined by First Lieutenant Pellew, who remained with us until the 28th, when he left to join Captain Butler's detachment in Santiago. On July 23, having been furnished with fifteen days' traveling and forty-five days' field rations, we left Tampa for Port Tampa, leaving at 2.25 p. m., being loaded on board the U. S. transport *Port Victor* at 4.30 p. m. That night Private Corbin, telegrapher, was transferred to Lieutenant Wildman, pending a discharge for sickness. The same has since been granted, date unknown.

We remained in Port Tampa Harbor July 23, and pulled out at 11.30 a. m. July 24. On board the boat we furnished all necessary guards, and gave as much drilling as our cramped quarters would allow. This drilling, together with the setting-up exercises, was maintained during our entire stay on the transports. Arriving in Santiago Harbor July 27, we were informed that we would not be allowed to land, and we transferred entire company and stores to the *Seguranca*, United States transport No. 12, at 4 p. m. July 29. We left Santiago on this boat at 8.30 a. m. July 31, and arrived off Egmont Key 7.30 a. m. August 4. Transferred to *Conal*, United States transport No. 7, at 10 a. m. August 7.

Received orders that evening to send 25 men and 2 officers to Porto Rico. Pursuant to these orders, First Lieutenant Martin, Second Lieutenant Palmer, 5 first-class sergeants, 6 sergeants, 8 corporals, and 6 privates were detailed for the trip, and the following morning these, with apportionment of equipment and stores, were transferred to the *San Marcos*, United States transport No. 20. The remaining 29 men, including 2 sergeants, the detachment under command of First Lieut. H. W. Sprague, were transferred to the *Seguranca*, United States transport No. 12, and sailed that morning, August 8, for New York, where they arrived Friday evening, August 12, going into barracks at Governors Island Saturday morning, the 13th.

Wednesday, August 18, this detachment in charge of Sergt. H. S. Hathaway, leaving First Lieutenant Sprague sick in hospital and Sergt. William Schwab behind, left Jersey City and arrived in Huntsville, Ala., at 12.30 a. m. Friday, August 19, joining us at 9 a. m. same date. The Porto Rico detachment remained on board the *San Marcos*, United States transport No. 20, until the following Monday, August 15, when they were ordered to the fumigating station at Egmont Key, thence to Huntsville via Port Tampa. Additional rations were taken aboard the tug *Charles Foster* at Egmont Key, and the detachment reached Port Tampa at 5.30 p. m. Monday,

August 15, leaving there at 7.05 p. m. for Huntsville, at which point we arrived Wednesday 4.30 a. m., August 17. Encampment was made temporarily a quarter of a mile from headquarters the same date. We were joined by the other detachment Friday morning, August 19, and permanent camp established opposite headquarters on that date, Lieutenant-Colonel Strong commanding Signal Corps, Major-General Coppinger, commanding general.

Immediately upon our arrival here we were called upon to furnish construction men for telephone and telegraph lines from corps headquarters to the various regimental headquarters, and also to supply telegraphers and telephone men for operating same.

No effort has been spared by my officers or myself in endeavoring to recruit this company with the very best material obtainable, and every man was chosen because of his special fitness for some branch of the work.

Their former experience, together with the training which they have had while in service, will, in my opinion, make them a most valuable adjunct to the army corps to which they may be attached.

The following are the names of the officers attached to my command: First Lieut. Charles H. Martin, First Lieut. Henry W. Sprague, and Second Lieut. Don A. Palmer.

Very respectfully,

THOS. F. CLARK,

Captain Tenth Company, United States Volunteer Signal Corps.

REPORT ON ORGANIZATION AND EQUIPMENT OF THE FIFTEENTH COMPANY.

HEADQUARTERS FIFTEENTH COMPANY,
UNITED STATES VOLUNTEER SIGNAL CORPS,
Camp Wikoff, Montauk, N. Y., October 2, 1898.

CHIEF SIGNAL OFFICER,

United States Army, Washington, D. C.

SIR: I have the honor to submit the following report of the organization of my company of the Volunteer Signal Corps:

I was assigned on June 25 to the duty of recruiting, and for that purpose proceeded to Philadelphia, Pa. I was engaged on that duty at No. 1312 Filbert street up to and including July 7, on which date I was recalled and directed to proceed with recruits under my command to Washington Barracks, D. C.

I reported at Washington Barracks on the 8th of July with 24 men, and on the following day a detachment of 11 men, under Lieutenant Martin, reported to me, the latter having been recruited at Pittsburg, Pa. On July 11 I enlisted one man at Washington Barracks. Since then the under-noted alterations have taken place:

Transfers to my company, 1 man from Second United States Volunteer Signal Corps, 1 man from Sixteenth United States Volunteer Signal Corps, 1 man from Eleventh United States Volunteer Signal Corps, 1 man from Fourteenth United States Volunteer Signal Corps, 9 men from Sixth United States Volunteer Signal Corps. Transfers from my company, 1 man to Thirteenth Company United States Volunteer Signal Corps. Discharged, 1 man enlisted in Philadelphia.

On the 6th instant I was ordered to proceed to Montauk Point, and on the 8th instant my company was ordered to Montauk to report to me at that place; this was done, the company, consisting of 1 first lieutenant and 2 second lieutenants and 45 men, joining me here on the 9th of August.

I hereto attach a detailed list of the men showing first, qualifications; second, their previous training and vocations, and third, their place of enlistment.

During our stay at Washington Barracks our men were trained in military tactics, riding, and signal work. We practiced signals daily, averaging five hours per day. When we reported at Montauk all of our men were proficient in flag signaling and heliograph signaling, and many good horsemen. They were assigned to their various duties according to their qualifications.

Respectfully,

AMBROSE HIGGINS,

Captain Fifteenth Company, United States Volunteer Signal Corps.

REPORT OF THE ORGANIZATION AND EQUIPMENT OF THE THIRTEENTH COMPANY.

WASHINGTON BARRACKS, D. C., *September 1, 1898.*

The CHIEF SIGNAL OFFICER,

Washington, D. C.

SIR: In compliance with instructions from the Chief Signal Officer, dated August 13, 1898, I have the honor to submit the following report of the organization, equipment, and personnel of Thirteenth Company, United States Volunteer Signal Corps.

The nucleus of the company was 30 men, recruited at Columbus, Ohio, between the dates of June 25 and July 6, 1898, by George R. Gyger, captain, United States Volunteer Signal Corps, in pursuance of Special Orders, No. 140, A. G. O., dated Washington, June 15, 1898. Four of these men had been members of the signal corps of the Ohio National Guard, and were well up in everything pertaining to the service, 15 were telegraph operators, 7 were electricians, 3 were linemen, 3 were students, and 1 was a photographer.

This detachment arrived at Washington Barracks, D. C., July 9, 1898, at the same time with a detachment of 12 men recruited at Fort Snelling by Lieutenant Palmer, United States Volunteer Signal Corps. These men were assigned to the Thirteenth Company, 8 being telegraphers and 4 linemen. Thirteen men, recruited by Lieutenant Colt, United States Volunteer Signal Corps, at Kansas City, Mo., were shortly afterwards assigned to this company. Of this number 6 were operators, 2 were electricians, 3 were linemen, and 1 was a photographer. This completed the quota of 55 enlisted men. Since arriving at the barracks, by verbal instructions from the Chief Signal Officer, 2 men, H. H. West, a newspaper correspondent, and Louis Leckert, a cook, have been enlisted. Several changes have since been made by the transfer of men from other companies or detachments to this company, and also from this company to other companies. At this time the membership of the Thirteenth Company consisted of 5 officers, viz, Capt. George R. Gyger, of Alliance, Ohio (commanding company); Capt. A. W. Yancey, of Memphis, Tenn. (temporarily assigned); First Lieut. C. M. Duffy, of Guthrie, Ky.; First Lieut. P. J. Reddy, of Evanston, Wyo.; Second Lieut. Gustav Hirsch, of Columbus, Ohio; 2 first class sergeants, 4 sergeants, 10 corporals, and 39 privates, or a total of 55 enlisted men.

The company is armed with 55 Springfield carbines (caliber .45), with web cartridge belts. It has 60 pieces shelter tents, 20 common tents, 5 wall tents, 1 Hunt cooking outfit, with a complete outfit of haversacks, canteens, and mess kits for field service.

The signal outfit consists of 2 acetylene gas flash-light outfits, 4 heliographs, complete, and 6 flag outfits; these are all new, but have been used for drill.

There are but 4 men in the company who are unable to send and receive messages by flag or heliograph; these are the post baker, company cook, and 2 men who have been kept on special duty.

Since the organization of the company it has had an unusual amount of fatigue duty to perform at the post, having to police the entire reservation from the barracks to the gate, which required a detail of one-fifth of the entire company every day, except Sunday. This was in addition to the ordinary guard and fatigue duty required of a company in connection with its own quarters and stable. We have lately been relieved from this duty, which is now being done by the artillery troops stationed at the post, and the company will now have more time to devote to signal work.

On August 21, 1898, Corpl. T. C. Jones, with a detachment of 14 men, was sent to Montauk Point, Long Island, to assist in the erection of an electric-light plant at Camp Wikoff; three of these men, Privates Steel, Brooks, and Finney, have volunteered to go to Cuba and have returned to Washington Barracks. The others are still at Montauk.

In addition to the work done on the lines and instruments at Washington Barracks this company has furnished a detail to inspect and repair the telephone line between Anacostia Bridge and Fort Washington; also to construct and maintain a telephone system at Fort Meyer. The fort was also connected by wire with the Western Union Telegraph cable at the west end of the Aqueduct Bridge at Washington. Special reports of all this work have been made to your office.

Five telegraphers are now on duty at the War Department. This detail was made to take the place of civilian operators who were on a strike.

The health of the company has been unusually good. There has been but little sickness among the members; none of a serious nature.

The company is now quartered in the south dormitory at Washington Barracks, and have all the modern conveniences in kitchen, bath, and quarters.

There has been but little complaint as to the quality and quantity of rations furnished us, although for the first few weeks there was a shortage.

The company is in excellent shape for field service.

Respectfully, your obedient servant,

GEO. R. GYGER,
Captain, United States Volunteer Signal Corps.

**HEADQUARTERS INDEPENDENT DIVISION, EIGHTH ARMY CORPS,
OFFICE SIGNAL OFFICER,
San Francisco, Cal., July 10, 1898.**

The CHIEF SIGNAL OFFICER,
Washington, D. C.

SIR: I have the honor to submit the trimonthly report of operations up to and including July 10, 1898.

Up to the time of the arrival of Sergeant Andreae's detachment from Washington there were 5 regulars and 18 volunteers in camp. Sergeant Andreae's detachment of 1 regular and 22 volunteers, the arrival of 1 recruit from Raleigh, N. C., the same day, the enlistment of 1 man, and the completion of the transfer of another, brings the present strength of the detachment up to 6 regulars and 43 volunteers. Much annoyance and delay in making up records has been caused by recruits arriving without proper papers, and in some cases with none at all. It may be impossible to complete all records before embarking.

The drills are being held four hours daily; when practicable from one to two hours being in setting-up drills, and the remaining time being utilized in wand, flag, and heliograph practice. Difficulty is experienced in heliograph practice because of foggy and cloudy weather.

The health of the men is good, only one case of sickness having developed; this in the Washington detachment, the man suffering from a disability which, the surgeon thinks, should secure his discharge.

The behavior of the men has been excellent, with the exception of two who were charged with drunkenness and who were sent before a garrison court.

The operators have been given little opportunity to practice owing to the unsettled state of the camp. Steps have been taken to supply the necessary facilities.

Delay in filling requisitions has given trouble, and no ordnance supplies have been received beyond a partial equipment for messing. The arms and other equipment will probably be received by Monday, July 11, 1898. It was hoped that the company could be organized and equipped in time to go on the *Peru* or the *Puebla*, which sail about July 13, 1898, but the lateness of the arrival of Lieutenant Tilly's recruits (telegram states that they will arrive July 12, 1898) and the delay in getting equipments will probably render it impossible to go until the next transports sail. It is intended to send transports out as fast as they can be gotten ready. The time of sailing of the other transports is indefinite.

Captain Martin has offered to assist in drilling in the camp, while Lieutenant Gordon is constantly with the men. Lieutenant Lawrence, upon the completion of recruiting duties, has been assisting me. First Lieut. F. H. Bailey reported for duty July 8, in accordance with telegraphic instructions; he was given a few days in which to complete his equipment. Second Lieut. William O. Bailey has purchased most of the nontechnical supplies required for signaling and telegraphic equipment from funds allotted for that purpose. The technical equipments from the Signal Office have not yet arrived.

In accordance with instructions left me by Major Thompson I shall leave Lieut. William O. Bailey, First Class Sergeants Davis and Horne, and Sergeant de Beaumont to clear up property matters and to follow on a later transport. Sergeant Davis is in charge of the storeroom; Sergeant Horne is acting as first sergeant; and Sergeant de Beaumont is in charge of the records and returns of the office. As early as practicable recommendations for appointment and promotion of noncommissioned officers will be made. As yet the short time permitted for observing the men will make the value of recommendations somewhat uncertain.

Major Thompson requested me to invite your attention to the complications which may arise regarding the enlistment of many of the men; some are for two years, and some are for "during the existing war," according to law and the practice in enlisting here.

Inclosed is trimonthly report for the first third of July, 1898.

Very respectfully, your obedient servant,

EDGAR RUSSEL,
Captain, Volunteer Signal Corps.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SIXTEENTH COMPANY.

CAMP GEORGE H. THOMAS,
Chickamauga Park, Ga., August 18, 1898.

The CHIEF SIGNAL OFFICER,
Washington, D. C.

SIR: In response to yours of August 13, 1898, I report:

My commission as captain is dated June 21, 1898, to rank June 13, 1898, and of the 5 ranking same date you name me first upon roster July 5, 1898. I qualified at St. Louis, Mo., June 27, 1898.

William E. Davies's commission as second lieutenant is dated June 4, 1898, to rank May 20, 1898, and of the 18 ranking same date you name him seventh upon roster July 5, 1898. He qualified at Butte, Mont., June 23, 1898.

By S. O. 152, A. G. O., my first assignment was made June 29, 1898, as recruiting officer, St. Louis, Mo., and in accordance with S. O. 159, A. G. O., Second Lieutenant Davies reported to me for duty there July 10, 1898.

Part of recruiting instructions were to notify about 60 men at various points in Missouri and Nebraska, who had made application to Washington, that enlistment at St. Louis was their opportunity, although but 2 responded for examination and 1 of them was rejected; giving all a fair chance after notice, involved delay. From July 6 to 12, inclusive, I recruited 25 men, the maximum permitted at St. Louis.

Upon receipt of S. O. 161, A. G. O., dated July 11, 1898, ordering myself, Second Lieutenant Davies, and recruits to Washington Barracks, District of Columbia. I closed recruiting station, left St. Louis with command July 13, and reported at Washington Barracks July 15, 1898, to Capt. George R. Gyger for duty, and to Col. H. H. C. Dunwoody as to recruiting service.

Of the 30 men recruited at Kansas City, Mo., by Second Lieut. W. W. Colt, after Lieutenant Colt and 11 men had been taken by Captain Gyger for the Thirteenth Company, the remaining 19 were transferred to my command July 15, 1898.

Having no noncommissioned officers, and need of one being imperative, I appointed Charles Sherman Reber acting first-class sergeant July 15, 1898, in accordance with orders from Capt. George R. Gyger, commanding.

Gained July 17, 1898, Corp. George E. Reed, coming from Company K, Sixth Massachusetts Volunteer Infantry, in accordance with S. O. 146, A. G. O., June 22, 1898. My command having been constituted the Sixteenth Company, and I named its commander, I recommended, in addition to Reed, and your order No. 9, July 21, 1898, appointed the following noncommissioned officers: First-class Sergt. Charles Sherman Reber; Sergts. Robt. T. Junkin, Howard H. Craig, Charles O. Willette, Charles A. Smith, Thomas Z. Franklin, and Myron C. Gould; and Corps. James J. Grady, Alphonse M. McGerry, Ownby F. Hocker, William D. Duncan, Lynn P. Hale, Louis C. Witt, and Eugene F. Kent; these to be subject to revision, and the remainder to be recommended after further rivalry and varied duties had proven comparative merit.

Changes at Washington Barracks involved: Gain, William C. Harrington, Harry Leonard Thomas, and Henry B. Smith, by transfer from other companies; Arthur W. Huse and Joseph W. Porter, recruits in volunteer corps ordered to Washington Barracks and assigned to Sixteenth Company; and Harry H. Davis, Prentice B. Hill, and Bernhardt Wiemeier, recruits for regular corps, temporarily assigned to Sixteenth Company volunteers. Loss, Michael P. Kernan, Harry Leonard Thomas, and Ralph J. Day, by transfer to other companies, which left me 50 enlisted men, "all for duty," upon leaving there. Second Lieut. Merchant H. Baldwin was attached to the Sixteenth Company one day, but then reassigned to the Fourteenth Company.

When advised, on the evening of August 30, 1898, Sixteenth Company would be ordered here, I completed vaccination, supplying clothing, signal equipments, and ordnance, also payment of the company, and left at 11.15 a. m., August 5, 1898, with orders to report to Maj. Gen. J. C. Breckinridge, commanding Camp George H. Thomas, Chickamauga Park, Ga., where I arrived and reported at 9 a. m., August 6, 1898. I also reported to Lieut. Col. George O. Squier, commanding Third and Twelfth companies, whose force I relieved, taking charge of telegraph on date of arrival and all else the following day, so enabling them to start for Newport News the 8th instant. In accordance with the spirit of instructions, that they should leave with me men, animals, and equipments unfit for a Porto Rico campaign, Captain Lyman transferred from the Twelfth Company to the Sixteenth Company Cook Joseph T. Terrell, an epileptic; and Captain Leigh transferred from the Third Company to Sixteenth Company Keene Ryan, having kidney disease and nervous prostration; Joseph Percy Conklin, suffering effects of partial sunstroke; George E. Evans, in bad health; and William H. Gallagher, an incorrigible, worthless vagabond. Of these the discharge board has recommended the discharge, for causes not in line of duty, of Keene Ryan and Joseph P. Terrell, both having their respective diseases before enlistment. Conklin remains in hospital awaiting further observation, and I shall ask General Breckinridge to secure a summary and dishonorable discharge for Gallagher. Sergt. Robert Emmet Brennan, of Third Company, guilty of insubordination with Third Company, and absent without leave when that company left, has been ordered to the Sixteenth Company; expects reduction to private by Captain Leigh, and wishes that punishment as final, and his transfer to the Sixteenth Company. He is capable and behaving well, and I am willing to accept him as a private.

Exclusive of the last 5 named, Sixteenth Company comprises: Telegraphers, 26; electricians, 4; lawyer, 1; stenographer, 1; linemen, 10; surveyor, 1; editor, 1; business, 6; balloonist, 1; making a total of 51.

Variation from vocations on enlistment papers are truthful corrections based on experience. My men are a good lot, made rapid progress in drill and signaling at

Washington Barracks, handled telegraph and telephone well, are practicing heliograph now, are willing campaigners, and have won compliments upon inspections and reviews. I judge this to be such a report as you invite.

Most respectfully submitted.

SAMUEL S. SAMPLE,
Captain, United States Volunteer Signal Corps, Commanding Sixteenth Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SEVENTH COMPANY.

SPRINGFIELD, ILL., *September 13, 1898.*

H. H. C. DUNWOODY,
Colonel, and Assistant Chief Signal Officer.

SIR: In accordance with instructions contained in your circular letter under date of August 12, 1898, I have the honor to report as follows:

The Seventh Company, United States Volunteer Signal Corps, was recruited in Chicago and Springfield, Ill., between June 10 and June 28, 1898.

The Springfield detachment was ordered to Washington Barracks, District of Columbia, June 24, by telegraph, and started same date. The Chicago detachment reached Washington, D. C., July 1, 1898, and was consolidated with the Springfield detachment, which was then known as the Seventh Company, as per Order No. 6, War Department, Signal Office, dated June 30, 1898.

On July 8, 1898, proceeded to Chickamanga Park, Ga., pursuant to A. G. O. dated July 1, 1898 (order shows no number). Reported as per order to Maj. W. A. Glassford, chief signal officer First Army Corps, and thereafter became a part of his command.

No signal equipments were received by this company, and they used the various equipments from the central storage warehouse of the chief signal officer First Army Corps. Constant drilling was indulged in at Washington Barracks, and a good degree of efficiency attained.

Of the 55 men of the Seventh Company, 51 were expert telegraph operators, 2 were cooks, 1 was a lineman, and 1 an expert telephone inspector. They had largely been employed on the board of trade and in the main office of the Western Union Telegraph Company in Chicago, while a few came from the Postal Company from that city. Some 8 or 10 were from the various railroads throughout the State.

The noncommissioned officers, as a rule, were selected from the members of the Signal Corps, Illinois National Guard, and the splendid reputation enjoyed by this company during the war was largely due to the high state of proficiency to which these national guardsmen had been brought through the indefatigable efforts of the former chief signal officer of the State, Capt. W. J. Lloyd.

The high grade of intelligence which characterized the Signal Corps membership was not lacking in the Seventh Company, and the fact that we lost not a man speaks volumes for their ability and disposition to take proper care of themselves in the matter of health conditions.

They were armed with 30 carbines and 25 revolvers, and I am convinced that this proposition of arming the signal companies with carbines was highly essential to safe operations in the enemy's country.

The company was officered as follows: Capt. John B. Inman, commanding; Capt. John W. McConnell, First Lieut. R. O. Rickard, First Lieut. Charles O. Clark, Second Lieut. Meldrum Gray.

Respectfully submitted.

JOHN B. INMAN,
Captain, Commanding Seventh Company United States Volunteer Signal Corps.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SIXTH COMPANY.

CAMP MEADE, PA., *September 4, 1898.*

Gen. A. W. GREELY,
Chief Signal Officer, U. S. A., Washington, D. C.

SIR: In compliance with your instructions, I herewith submit a brief history of the Sixth Company, United States Volunteer Signal Corps.

The company was organized at Camp Alger, Va., by Maj. (now Lieut. Col.) R. P. Strong, chief signal officer Second Army Corps, by transferring enlisted men from the line of the Army. The company records show that Maj. R. P. Strong reported at the headquarters of the Second Army Corps, at Camp Alger, Va., on June 6, 1898. On June 8, Noble F. Potts, Company C, Sixth Illinois Infantry was attached. On the

9th, 10th, and 12th, several privates were attached. On the 19th the Chillicothe, Ohio, Signal Corps detachment of the Seventh Ohio Volunteer Infantry was attached, 13 men in all.

On the 15th, Second Lieut. B. F. Lenoir was attached to the company; July 4, Capt. Charles S. Conner, and Second Lieut. Frank P. Tate were assigned to the company and reported for duty. On July 7, Second Lieutenant Tate was promoted to be first lieutenant. On July 9, Second Lieutenant Lenoir was transferred to the Washington Barracks by order of the War Department.

The company was recruited up to 65 men on July 18. Lieutenant Tate was detailed as property officer of the corps July 9. On August 6, 9 men were transferred to Captain Higgins's company at Washington Barracks.

The Sixth Company built the entire telephone and telegraph systems at Camp Alger, Va. It was ordered to Camp Meade, Pa., August 16, arriving at that point August 17, and at this point has built and completed the entire telephone and telegraph system at Camp Meade.

The company has a fine lot of young men now. August 27, 25 men asked for their discharges. They were recommended. Twenty-five more men were at once transferred from the line.

On August 3, First Lieut. H. D. Coe was assigned to the company. On August 9, Second Lieut. E. E. Bawsell was assigned to the company.

Respectfully,

C. S. CONNER,

Captain Sixth Company, United States Volunteer Signal Corps.

REPORT ON ORGANIZATION OF TWELFTH COMPANY.

TWELFTH SIGNAL COMPANY,

Camp Greely, Newport News, Va., August 18, 1898.

The CHIEF SIGNAL OFFICER,

War Department, Washington, D. C.

(Through military channels.)

SIR: I have the honor, in compliance with orders from Col. H. H. C. Dunwoody, Assistant Chief Signal Officer, under date of August 12, 1898, to report upon the organization of my company, the qualification of the men, changes in the command since organization at the central station, and service rendered, etc.

My commission as captain was issued June 10, 1898, with rank from May 20, 1898. On June 13, in compliance with orders from Colonel Dunwoody, I opened a recruiting office in the armory of Company A, Fifty-first Iowa, at Des Moines, Iowa, and within twelve days had selected the 50 men required, from at least 200 applicants.

To my ten years' service in the National Guard, reading in Myer and other signal works, and the aid of Dr. George M. Chappel, forecast official at Des Moines, formerly a sergeant in the Signal Corps, I attribute what success I had in securing the right kind of men for the service.

The following list will show the qualifications of these men: Operators, 24; electricians, 14; clerks, 3; stenographer, 1; draftsman, 1; soldier, 1; cooks, 2; blacksmiths, 2; photographer, 1; veterinarian, 1; barber, 1. The operators are all of the best class. A "pony line" was used in the armory to test the applicants for enlistment, and only the best were enlisted. The electricians are of what might be termed three grades: First, graduates of colleges who have made a specialty of electricity and electrical engineering; second, practical linemen who can do anything from putting in a telephone switch board to splicing a telephone cable of 300 wires and testing it out; third, electricians who have made a specialty of heavy currents, dynamos, electric motors, etc. Half the linemen were enlisted while at work splicing a 204-wire telephone cable in front of the recruiting office.

The detachment in two separate parties started for Washington Barracks, District of Columbia, June 25, in compliance with orders A. G. O., June 23. They arrived at their destination June 27, and the work of equipment and organization was at once taken up. The men were uniformed with blue, but were unable to get stable or fatigue clothing. They were armed half with the revolver and half with the carbine, caliber .45. No lieutenants were assigned until July 14, when First Lieut. Henry G. Opdycke, of Jersey City, N. J., was assigned. Other lieutenants were assigned as follows: First Lieut. R. B. Ogelsbee, of Indiana, July 21; Second Lieut. W. C. Cannon, of the District of Columbia, August 6; First Lieut. Charles B. Rogan, jr., of Tennessee, August 13.

At Washington Barracks I drew from Capt. A. W. Yancey, quartermaster and ordnance officer, a complete mess outfit for the men, including Buzzacott's stove, meat cans, knives, forks, and spoons. Sufficient canvas to shelter the men, four in a tent, was drawn. From the disbursing officer a complete signal equipment was secured,

including torches, signal lanterns, heliographs, telegraph instruments, etc. Upon arrival at Camp Thomas, Chickamauga Park, Ga., July 23, additional equipments were drawn, until when the command was ordered to Newport News, Va., August 8, as the advance party of Major General Wade's Porto Rico expedition, which did not sail, I had, besides the property above enumerated, 24 mules, 3 signal corps wagons, 3 army wagons, 12 horses and equipments, and sufficient wire, etc., to last the command in the field for some time.

While I may not be called upon to do so, yet I can not refrain at this time from expressing my appreciation of the many kindnesses of the officers of your office, and the quartermaster and ordnance officer at Camp Thomas in aiding me in securing a full equipment.

While at the central station the men were drilled from six to eight hours daily in the school of the soldier, company movements, and signaling with the flag, wand, and heliograph. Much progress was made. Since then the drills have continued at Camp Thomas and here.

The men have shown a marked versatility. Sergt. James Anstin Mortland was appointed photographer for the provisional division intended for Porto Rico with Major-General Wade. He is doing excellent work. First Class Private Emerson K. Paine, a practicing veterinary when enlisted, was made battalion veterinarian. Phillip Vander Myden was placed in charge of the blacksmith force. The stenographer has taken the records of boards of survey, the draftsman made maps of camps and practice marches, while mechanics have burned charcoal for filters, made bridges across streams at Camp Thomas from wire cables, and shown a desire to make a success of any task, no matter how new or novel.

Instructions in building telephone and telegraph lines have been unnecessary in this command. The men thoroughly understood this business when enlisted. At Camp Thomas linemen from this company reconstructed the 13 miles of line after Major Glassford had left for the front, put in a new switch board, and made the lines more serviceable.

At this place a detail of 8 men in charge of Lieutenant Opdycke has reorganized and repaired the telephone lines at Fort Monroe, which gave much trouble for months until the arrival of the signalmen. Plans for constructing new lines and overhauling special lines used in connection with the batteries are now under consideration.

On August 13 a detachment of 20 men, under command of a first lieutenant, was divided between Captain Leigh's Third Company and myself, Lieutenant Rogan and 9 men coming to the Twelfth Company. These men were enlisted by Lieutenant Rogan, and are divided as follows: Operators, 4; civil engineer, 1; farmers, 2; electricians, 2. These men are the pick of the 20.

First Class Private Russell is at work upon an electric shutter for the heliograph, ideas for which were furnished by myself. Should it be a success your office will be notified.

A prize has been offered by the company commander to the sergeant having the best drilled signal squad, which has awakened much interest.

I take pleasure in informing you that the discipline of this company has been most excellent. The esprit de corps has been pronounced and the men individually filled with a desire to learn their duties and make this branch of the service a success.

While this company, like all other troops from Iowa, has not had a chance to see active service, I feel confident that it is not because of any lack of ability on the part of the men.

Most respectfully, your obedient servant,

FRANK E. LYMAN, Jr.,

Captain, United States Volunteer Signal Corps, Commanding Twelfth Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE THIRD COMPANY.

To the CHIEF SIGNAL OFFICER, *United States Army.*

SIR: I have the honor to submit the following narrative report regarding the Third Company, United States Volunteer Signal Corps:

This company was organized from a detachment of 61 men enlisted by me in Brooklyn, N. Y., from the 13th to the 22d of June, 1898.

A recruiting station was established in the armory of the Second Signal Corps, N. G. N. Y. The men recruited were of a high order of intelligence and had, to a great degree, that technical ability needed by the Signal Corps. Seventeen members of the Second Signal Corps of New York joined, all of whom were proficient in visual signaling, besides having a certain knowledge of the general duties of a soldier.

The law requiring two-thirds of the Volunteer Signal Corps to be telegraph operators or electricians was carefully observed. Of the 61 men enlisted, 43 were telegraph

raphers or electricians, 12 had previous military service in the Army or the National Guard, 2 were cooks, and 1 was a hostler.

Capt. Edward B. Ives, recruiting officer for New York City, enlisted many men at the same location as I did. Indeed, the recruiting in New York and Brooklyn progressed at the same time by an arrangement between Captain Ives and myself.

The patriotism of telegraph operators was warmly seconded by the officials of the telegraph companies of Greater New York, who, upon advice from the recruiting officers that any of their employees had enlisted, furnished a certificate of his ability and character and promised to employ such men when they returned from the war. Many of the telegraph operators who enlisted were men who at the time were filling the most responsible of positions in these companies, and who were being paid the highest of salaries obtainable for such skill.

The detachment remained in Brooklyn until June 25, 1898, when it proceeded to Washington Barracks, D. C. While in Brooklyn, drills were given daily in the elementary part of the Cavalry Drill Regulations and much progress was made by the men in learning the Myer code and becoming familiar with the different methods of signaling.

This was possible because the men were quartered in a signal corps armory containing equipment which was loaned to the recruits that they might readily obtain such information as they needed.

Although attached to this Brooklyn Signal Corps, I am constrained to say that while the men remained in Brooklyn the fact that they were quartered in this armory was an advantage in many ways. Apparatus for instruction was ready to be used, cots and blankets were available so that the convenience and comfort of all concerned was considerably conserved.

Arriving in Washington, D. C., the detachment became designated as the Third Company. The issue of arms, uniforms, and equipments was quickly made. The arm issued was the pistol, and, in view of my experience of the next few months, I have been confirmed in my idea that any other weapon than the pistol would have been a disadvantage to the signalman.

The equipment received by the company was very complete, including everything except transportation and the supplies necessary for the construction of electric lines. The drills commenced in Brooklyn were continued while in Washington, and the men became quickly accurate and rapid in the use of the Myer code by motion and flash.

The company proceeded to Camp Thomas, Chickamauga Park, Georgia, arriving at that place on July 8, 1898, reporting to Lieutenant-Colonel Squier, the chief signal officer of the Third Army Corps. Camp was established near the army corps headquarters, and the company, with the Twelfth Company, formed the signal corps battalion. The work of the battalion was the operating and the repair of the telegraph and telephone lines in Camp Thomas, besides the continuing of such instructions as was necessary for the men. Such work as the company had to do seemed to be performed satisfactorily. While at this place the equipment of the company was added to by sufficient transportation, horses, etc.

On August 8, 1898, the company, with the battalion, proceeded to Newport News, Va., for the purpose of embarking for Porto Rico. Upon arriving at Newport News, however, the orders were countermanded and the battalion established Camp Greely at that place. The company left the battalion at Camp Greely on August 21, 1898, and proceeded to New York City, embarking there for Santiago, where it arrived August 29, 1898, relieving the Signal Corps battalion of the Fifth Army Corps. The duty required in Santiago was the construction and operation of telephone and telegraph lines in the city and province.

With the exception of a few telephone stations, such communication as the Department of Santiago required had to be established. Many additional telephones were immediately placed in and about the city and the work of connecting the different cities with telegraph lines commenced. The slowness with which the supplies of the company were unloaded from the transport delayed considerably the work to be done.

By an arrangement with the superintendent of the railroad company running to San Luis, telegraph communication was established from Santiago to San Luis over the railroad line and a new line constructed from San Luis to Palma Seriana. This line was working nicely on September 9, 1898, the date at which this report is ended. The company, since the time of its being recruited in June, had changed considerably. Gains in number had been made by the joining by transfer of men from a detachment recruited in the State of Tennessee and by men from the Twelfth Company. Losses, however, by transfer to other companies had brought the membership down to 37 men. This large loss of men was because the company had been ordered on two occasions to go on foreign duty, and men who were unfit by their physical condition, or who were disinclined for foreign service, were at each time

ordered to be transferred to other companies. The health of the company was very good until the company reached Santiago. In Camp Thomas many men suffered from attacks of bowel troubles, but only one case of typhoid fever developed. The absence of any serious illness at Camp Thomas was the result, I think, of the rigid enforcement by Colonel Squier of those rules of cleanliness through which good health can only be expected. The health at Newport News was very good, owing to the splendid opportunities for sea bathing which that place afforded. The men were encouraged to bathe and seemed to enjoy the facilities with much benefit to themselves.

In Santiago many cases of illness—typhoid, malaria, and yellow fever—attacked the officers and men, notwithstanding that great care was observed in the diet and exposure of the company, and the cleanliness of the several stations occupied.

There have been assigned to the company at various times Capt. Edward T. Winfield, First Lieuts. Alvar G. Thompson, William Jarvie, jr., and Charles B. Rogan, jr., and Second Lieuts. Francis Creighton and Henry C. Baldwin. All of these have been enthusiastic and conscientious in the performance of their duties.

Very respectfully,

FREDERICK T. LEIGH,
Captain, United States Volunteer Signal Corps.

INCLOSURE C.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE VOLUNTEER SIGNAL CORPS.

List of Signal Corps property drawn for the following companies of the Volunteer Signal Corps.

	No. 2.	No. 5.	Nos. 6 and 11.	No. 10.	No. 12.	No. 14.	No. 15.	No. 16.	No. 18.
Flag, international code, set	1								
Flags, signal, complete	136	80	24	36	52	42	12	20	
Typewriter	1	1	2	1	1	1	1	1	1
Keys, telegraph	12	6	6	4		6	25		8
Sounder, main line	12	6	4	4			25		8
Relay	1		2	1	4	6	25		
Switch board, ten drops	2		2		1				
Torches, complete	24	16	4	8	12		12	12	
Glasses, field, complete	43	8	4	8	6	8	6	6	8
Glass, "Porro prism," complete	1	1		1	2	1	1	1	1
Lanterns, signal, aluminum	18	2							
Wagon, wire, 6 reels	1		1						
Wagon, battery (4 tables)	1		1				1		
Wagon, battery (2 tables)	2		1						
Wire, stranded steel, miles	10								
Wire, insulated, miles							2		
Wire, silicon bronze, miles	3								
Battery, cells	50				50		98		
Heliographs, complete		8	8		6	4	6	4	8
Telescopes, complete		4	2		4		6	6	8
Telephones, complete		18	19		8		10	4	
Stove, cooking, field									
Tents									
Bicycle		1	4						4
Paper, telegraph, pounds		50							
Wire, telegraph, miles			30		30		30		50
Lanterns, acetylene			2		2				
Kits, telegraph and telephone			2				2		
Wagon and harness							1		

APPENDIX 3.

REPORT OF COL. JAMES ALLEN, CHIEF SIGNAL OFFICER, ARMY OF PORTO RICO, ON THE OPERATIONS OF THE SIGNAL CORPS ON THE SOUTH COAST OF CUBA AND IN PORTO RICO, WITH SUPPLEMENTAL REPORT BY LIEUT. COL. SAMUEL REBER, UNITED STATES VOLUNTEER SIGNAL CORPS.

HEADQUARTERS OF THE ARMY IN THE FIELD,
Ponce, Porto Rico, September 1, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: I have the honor to report that in compliance with telegraphic order, I left Governors Island, N. Y., April 23, 1898, and reported to the Major-General Commanding the Army on the 24th, and, having received his verbal instruction, proceeded the same day to Key West, Fla., where I arrived April 26, and took charge of the cable and telegraph offices.

Before leaving New York a ship had been chartered and equipped as a cable ship for the purpose of establishing communication between Key West and the base of operations of the army in Cuba, which, at that time, it was supposed would be established on the northern coast of Cuba in the vicinity of Havana.

Arrangements were made by which confidential information could be obtained from Cuba. This information, obtained from various sources, was forwarded to the Major-General Commanding, or directly to the Departments interested.

On the morning of May 19 the Spanish fleet under Admiral Cervera was located at Santiago de Cuba. Its presence was at once telegraphed to the Chief Signal Officer of the Army, Washington, and reported in person to the senior naval officer at Key West.

The arrival of the Spanish fleet at Santiago having changed the plan of campaign, I was directed to proceed to that point and destroy the cables landing at Santiago and Guantanamo.

I left Key West on the S. S. *Adria* on the morning of May 29, under convoy of the U. S. S. *Dolphin*, arriving at Santiago on the afternoon of June 1.

Commenced dragging for the cable on the morning of June 2, being cautioned by the naval officer in command that there were "hot batteries," having range of 5 miles, on each side of the entrance. The water at that distance from the shore being too deep to hope for success, and having instructions to keep, if possible, within the 3 mile limit, we were compelled to work within range of the guns.

Late in the afternoon a cable on direct bearing from Santiago to east end of the Island of Jamaica was hooked in 900 fathoms of water.

As we were quite near the shore and unable to move if fired upon by the batteries or attacked by torpedo boats, the signal "Help wanted" was set just before dusk. The *Dolphin*, Captain Lyon, immediately responded, and gave us some men to assist in getting up the cable. The *Texas*, Captain Philip, also came up at once and took position between the *Adria* and the batteries.

About 3 o'clock a. m., June 3, the S. S. *Merrimac* was sunk in the entrance to the harbor.

Shortly after daylight as we were going in position to drag, the *Adria* was fired at from a shore battery. Later in the day the *Ireton* and *Texas* were sent in to protect the *Adria*. They both cleared for action, moved in close to shore, and the work was continued.

June 4. Dragged from daylight until about 1 p. m., when I went aboard the flagship to consult with the admiral. As he informed me he was going in with the entire fleet to make a demonstration and develop the batteries, no further work was done during the day.

June 5.—Spanish torpedo boats were at entrance to harbor all the morning. About 2 p. m. one of them came out so far that Captain Philip of the *Texas* came to our relief. The torpedo boats withdrew and work was continued under the protection of the *Texas*. Caught a cable about 6 p. m. in 1,044 fathoms of water. Captain Philip sent a detail of sailors to assist, and about 9 p. m. the bight was brought on board and about 20 feet cut out and the ends dropped overboard.

June 6.—The bombardment of the batteries begun by the fleet about 7 a. m., and no work was done during the day. During the bombardment a number of shells came over the *Adria*, with the unfortunate result that the next morning the crew refused to do further work, on the ground that the *Adria* was a neutral ship and that their Government would not protect them in cutting international cables.

June 8.—Started for Mole St. Nicholas at 11 p. m. on the U. S. S. *Yankee*, Captain Brownson, with dispatches for the Major-General Commanding and to arrange with French Cable Company for instruments to open an office at Guantanamo.

Returned to Santiago June 10.

June 11.—Started for Mole St. Nicholas on U. S. S. *St. Louis*, Captain Goodrich. The *Adria* was convoyed to Guantanamo. Returned to Guantanamo with cable instruments June 13, and immediately began the work of repairing cables at that point which had been cut by the *St. Louis*. Opened communication with Washington from the ship on the night of June 20, and reported arrival of General Shafter's army.

Established office on shore June 21.

June 22.—Commenced repairs on Guantanamo-Santiago section, which were completed at 1 a. m., June 25. Started at once for Daiquiri and reported to General Shafter that communication had been established with Washington. As the western landing of this cable at Aguaduros was in possession of the Spanish, it was cut at sea, outside of Siboney, spliced to the cable in the ship's tanks, and landed at Siboney, the landing place of the troops. This was completed June 29. A supply of specially constructed and insulated wire had previously been forwarded from the *Adria* to Major Greene and lines constructed by him to the front. Additional supplies of wire, with long-distance telephones, were at once moved forward to him at the front to enable him to complete his system of wires. The landing of the cable completed direct electrical communication between the headquarters of the army in front of Santiago and the headquarters of the Army in Washington. There being some complications regarding the use of the Guantanamo-Siboney section of the French Company's cable, an American cable was laid from Guantanamo to Daiquiri and connected with the land lines from Daiquiri to Siboney, which had been constructed by Major Maxfield. This work was completed July 15, giving two independent lines from Guantanamo to Daiquiri, Siboney, and General Shafter's headquarters.

From the very inception of the enterprise the want of means for its execution was apparent. There was no cable ship under the American flag, and efforts to procure a suitable foreign ship were unavailing. The stock of available deep-sea cable in the United States was limited to small amounts held by different companies for repairs, and the cable factories were all working to their full capacity on orders already given by the War Department. The Western Union Telegraph Company had at Key West a set of machinery suitable for the work, which was placed at the disposal of the Department. A ship was immediately chartered with a view of sending her to Key West and completing her equipment there, but on returning to the Western Union office, after an absence of an hour, it was found that the Secretary of the Navy desired the immediate use of this machinery, and, as he had a ship at Key West on which the installation could be made at once, all claims of the War Department were instantly released.

I was, through the Western Union Company, put in communication with President Scrymser, of the Mexican Telegraph Company, who placed at the disposal of the Department all the machinery, etc., of that company, which was installed on the *Adria* under the direction of Mr. Robertson, of the Mexican Company. The ship was sent to Boston and there took 24 miles of deep sea cable, furnished by the Western Union Company, then returned to New York, took on 29 miles of intermediate type cable and 50 miles insulated, but unarmored, wire, also telephones, telegraph instruments, and supplies for land lines and proceeded to Key West.

All arrangements were completed on the morning of the 28th of May for sailing at dark that evening for Santiago under convoy of the U. S. S. *Nashville*. About noon the captain of the *Adria* informed me that owing to the hazardous nature of the work to be undertaken he declined to go. However, after arrangements had been made to have another captain sent out he decided to continue in charge of the ship. I had informed Commodore Remy that I would not be able to sail at the hour agreed upon owing to the action of the captain of the ship, and, as the *Nashville* was needed on the blockade, he did not feel justified in holding her. He, however, after the adjustment of the trouble with the *Adria*, ordered the *Dolphin* to be made ready to sail the next morning. About 5 p. m. Captain Hellings, who had engaged a competent crew of cable hands to accompany the expedition, informed me that they all declined to go. The Chief Signal Officer immediately procured an order directing the detail of 10 volunteers from the artillery garrison at Key West Barracks. The order was received at 11 p. m., and the men reported to me at daylight the next morning, and the *Adria* proceeded to sea under convoy of the *Dolphin*, Captain Lyon, and reached Santiago June 1.

The first cable was hooked on the afternoon of June 2, in 900 fathoms of water. The weakness of the machinery and the helplessness of the crew were at once manifest. The machinery was designed for cables in from 60 to 100 fathoms of water. Of the cable crew only one man had ever been to sea before, and none of the men had ever seen a cable. The work of raising the cable proceeded slowly and irregularly, and when near the surface either broke or slipped off the grapple.

The bottom of the sea off the coast of Cuba is extremely uneven, the depth of water

changing abruptly from 100 to 700 and 800 fathoms. This necessitated the continual paying out and taking in of the grappling rope. The grapple frequently caught on rocks, when the entire rope had to be taken in and coiled in the hold and again paid out, a work of two or three hours.

Three days were thus occupied before another cable was caught in 1,044 fathoms. Straining the machinery to its utmost, and with the assistance of a detail of sailors from the *Texas*, it required more than three hours to bring the light on board.

The work of repairing the cable at Guantanamo and Siboney and the laying of the new cable from Guantanamo to Daiquiri was but a repetition of the slow and uncertain work of grappling, of delays incident to the conditions encountered. When the work was completed on July 15 the entire resources of the *Adria* were exhausted. Every grapple was broken, all of the 2,000 feet of grappling rope was worn out or lost, and every mile of cable expended. Twenty miles of the insulated wire had been landed for use in constructing land lines, together with supply of telephones for working them. Ample means of communication had been established between all points in Cuba occupied by our troops and between Cuba and the United States.

I especially recommend for brevet of major Capt. Martin L. Hellings, United States Volunteer Signal Corps, to whose experience and skill and untiring energy, under dangerous and difficult circumstances, was largely due the success of the undertaking.

The valuable assistance and devotion to duty, under the same circumstances, of Lieut. Victor Sheppard and Lieut. F. M. Jones should not go unrewarded. I recommend that they be appointed second lieutenants in the regular establishment.

Lieut. Walter L. Clarke, United States Volunteer Signal Corps, under whose direction the *Adria* was fitted out, rendered services of the highest value, and I especially recommend him for appointment as second lieutenant in the regular establishment.

Mr. E. H. Strickland, an expert operator of the Western Union Telegraph Company, is entitled to great praise for valuable services rendered at Key West and during the entire expedition.

Acknowledgments for services rendered at critical times are due to Col. Charles S. Diehl, of the Associated Press; to Mr. Frank B. Richards and Mr. Willis J. Chamberlin, of the New York Sun; to Mr. Ernest K. Coulter, of the New York Herald, and to Mr. Henry B. Chamberlain, of the Chicago Record.

July 16.—Went alongside the *Yale* and reported to the Major General Commanding.

July 18.—Transferred signal material from the *Adria* to the S. S. *Comanche* and sailed July 21 for Porto Rico.

July 22.—Lieutenant-Colonel Reber, United States Volunteer Signal Corps, on the S. S. *Stillwater*, with Captain Clark's telegraph company and ample supply of material on board, joined the fleet.

The official report of Lieutenant-Colonel Reber is appended and marked "A."

The reports of Lieutenant-Colonel Glassford and Captain Lamar were made direct to you and are on file in your office.

The Ninth Company, Captain Ives, was promptly landed at Ponce on the morning of July 28. Captain Ives immediately established communication with all the men-of-war and transports in the harbor by signal stations on the top of the headquarters building and took charge of the telegraph office at Ponce. Captain Ives rendered most efficient service and on August 4 received a merited promotion to lieutenant-colonel and chief signal officer of the Second Corps.

I landed at Ponce on the morning of the 28th with the Major-General Commanding. On breaking open the cable hut it was found to contain the junction of the cables to Jamaica and Santa Cruz. The cable was cut and instruments placed on both lines. Failing to get a reply from either office, I reported to the Major-General Commanding, and at his request I was furnished passage on the U. S. S. *Dirie*, Captain Davis, and proceeded on to St. Thomas, Danish West Indies, where arrangements were made for opening a West India and Panama office at Ponce. As only one operator could be spared from St. Thomas it was necessary to send to Santa Cruz for another. The offer of Mr. Chamberlain, of the Chicago Record, to perform this service was accepted. He sailed at once on his yacht for Santa Cruz, taking on board an operator of the West India and Panama Company, and landed him at Ponce the next morning. The *Dirie* returned to Ponce by the way of San Juan and the Mono Passage, notifying several transports of the landing at Port of Ponce and directing them to proceed to that point. A central office was established at Ponce. From this office there were two cable lines to the United States, one via Jamaica and the other via Santa Cruz; land lines to Arroyo and thence to General Brooke's headquarters; to Juan a Diaz, Coamo, and General Wilson's headquarters; to Adjuntas and Utuado and General Henry's headquarters; to Yauco, Guanica, and General Schwan's headquarters; to the Port of Ponce, and thence by signals to all men-of-war and transports in the harbor.

The several local headquarters and hospitals were connected by telephone.

The following order was issued August 2 from the headquarters of the army in the field:

"SPECIAL FIELD ORDERS, }
No. 13. }

"PAR. II. (1) All means of communication by telegraph, telephone, or otherwise, will be established and maintained by the Signal Corps under the direction of the chief signal officer at the headquarters of the army.

(2) Corps commanders will establish, and at all times maintain, communication between their headquarters and headquarters of the army.

(3) The chief signal officer of each corps will furnish promptly to the chief signal officer, headquarters of the army, a diagram of his system of communication between corps and army headquarters, indicating the method of transmitting intelligence, and the area and distance covered. Any change will be at once reported.

(4) All official communications offered for transmission must be written (except personal communication over telephones between officers). These will be forwarded to the chief signal officer of the army at headquarters as soon as practicable after filing with the operator. Operators are positively forbidden to receive or transmit any but written communications.

(5) Lieutenant-Colonel Reber, United States Volunteer Signal Corps, will report to the chief signal officer at army headquarters. The Ninth Company, United States Volunteer Signal Corps, Captain Ives; the Telegraph Company, Captain Clark; and the Fifth Company, Captain Lamar, are hereby assigned to duty at army headquarters and will be consolidated under the immediate command of Lieutenant-Colonel Reber, United States Volunteer Signal Corps."

So much of it as relates to the Fifth Company was subsequently changed by verbal orders of the Major-General Commanding, and Captain Lamar reported directly to Major-General Wilson.

Lieutenant-Colonel Reber was in charge of the central office and the lines to Port of Ponce, Guanica, General Henry's headquarters, and General Schwan's headquarters.

Lieutenant-Colonel Reber is an officer of exceptional ability, and is entitled to special commendation for the prompt and efficient manner in which he performed his duty.

During the month of August from 8,000 to 10,000 words per day were transmitted by telegraph, and the telephone lines were constantly in use.

The entire system was turned over to Lieutenant-Colonel Glassford, chief signal officer on General Brooke's staff, September 1, 1898.

Very respectfully, your obedient servant,

JAMES ALLEN,
Colonel, United States Volunteer Signal Corps."

HEADQUARTERS SIGNAL CORPS BATTALION,
ATTACHED TO HEADQUARTERS OF THE ARMY IN THE FIELD,
Ponce, Porto Rico, September 2, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

(Through Col. James Allen, Chief Signal Officer, Headquarters of the Army in the Field.)

SIR: I have the honor to submit the following report of the operations of the Signal Corps under my command from July 1 to the present date.

From July 1 to July 8 work on the balloon plant was continued and July 9 you made a personal inspection of our establishment at Tampa. The erection of the plant was delayed by a most unfortunate accident to the gasometer, which was badly wrecked by the railroad company 150 feet from its point of erection. The gasometer, a cylinder 12 feet in diameter, was pulled through a 10-foot trestle by the railroad company and so badly distorted that it required three days' continuous work to put it in a serviceable condition.

On July 8 I received telegraphic orders from the Major-General Commanding the Army to embark Capt. C. C. Clark's field telegraph train for Santiago de Cuba. The quartermaster's department, after several delays, supplied the U. S. transport *Stillwater* for this purpose. The loading was begun on July 13 and finished on July 14, when telegraphic orders were received by the quartermaster at Port Tampa to ship no more troops to Santiago. This order, as far as the *Stillwater* was concerned, was revoked the next day and the transport sailed on July 16, having on board Capt. C. C. Clark and J. P. Wooten, United States Volunteer Signal Corps; First Lieut. and Asst. Surg. Francis D. Patterson, Third Pennsylvania Volunteers; Second Lieut. Albert J. Dillon and W. M. Talbott, United States Volunteer Signal Corps, and Capt.

A. D. B. Smead, United States Volunteer Signal Corps, who had orders to join Captain Ives's company at Siboney, myself, 50 enlisted men, 13 teamsters, 10 wagons, and 65 horses and mules.

After an uneventful voyage around the west end of Cuba, Santiago de Cuba was reached at 8 a. m. on July 21, where I went ashore and not finding the Major-General Commanding the Army, I reported to General Shafter, who directed me to proceed to Guantanamo Bay at once. The *Stillwater* sailed that afternoon, after discharging part of the equipment of the Second United States Cavalry, which had been left on board from the first Santiago expedition. We reached Guantanamo Bay and anchored at 8 p. m. Immediately upon dropping anchor, the boat of the captain of the port came alongside and informed us, after asking what our orders were, that the squadron with General Miles had sailed eastward for Porto Rico. Anchor was immediately raised and we proceeded to sea, overtaking the fleet at 11 p. m. that night. At daylight the next morning I reported by flag to General Miles, on board the U. S. transport *Yale*.

The *Stillwater* accompanied the fleet, and on July 25, at 8 a. m., was off the harbor of Guanica, Porto Rico. The U. S. auxiliary cruiser *Gloucester* entered the harbor first and fired a few shots, clearing the shore, when the *Lampasas* and *Nueces* entered the harbor, followed by the *Stillwater*. I immediately disembarked two signal parties, and on landing on the beach found Brig. Gen. J. C. Gilmore, United States Volunteers, in charge of landing the forces. Leaving one party in charge of Lieutenant Talbott, with General Gilmore, I proceeded to the front, then about three-fourths of a mile from the beach, and found Col. W. M. Black, United States Volunteer Engineers, with two companies of the provisional engineer battalion on the right of the road, and Maj. S. A. Day, Fifth Artillery, with the men of one battery of the siege train on the left of the road. We established communication with the beach at 10.45 a. m., and pushed forward with the advance line. It is to be noted that from that day to the present there has never been a time when the advance line has not been in communication with the headquarters of the army, during the entire campaign, and all the movements of the troops communicated to it by the appliances and methods supplied by the Signal Corps. As more troops disembarked the line was thrown out, and that afternoon a telephone line was run to the outposts.

On July 26 signal parties were established at various parts of the line and intercommunication had by telephone, flag, heliograph, and lantern. Our field telephone kits proved of great value in this service. As the outposts were moved toward Yauco on the 27th the telephone line was extended. On this day I received orders from the Major-General Commanding to build a telegraph line into Yauco and open communication with Ponce. On the morning of the 28th the lance truck and wire wagon were unloaded, and at 12 m. construction of the line was begun, 3 miles being erected before dark. More rapid progress was impossible, owing to the difficulty of building the line through Guanica, a village scattered over a large area, with the houses surrounded by dense foliage, making it necessary to cut out a right of way in a number of places. I pushed on to Yauco that afternoon, taking 20 men of the Sixth Massachusetts Volunteers from one of the outposts, and instead of encountering resistance was received by great demonstrations of joy on the part of the populace. At the junction of the Yauco and Sabana Grande road the Spanish telegraph line leading from Yauco to the west was found intact. On reaching Yauco it was discovered that the instruments and most of the battery in the telegraph office had been broken and the records carried away by the Spaniards the day before. The telegraph line, belonging to the Compañía de Ferrocarriles de Puerto Rico (French company), was in operation between Yauco and Ponce, and communication was established over this line with the headquarters of the Army, which had just landed at the Playa de Ponce. While I was in the railroad station Gen. Roy Stone, United States Volunteers, arrived at 4.55 p. m. with a detail of 20 men from Ponce, and I turned the command of the city over to him. The inclosed map, Exhibit A, shows the lines operated by the Spanish Government just previous to our landing. The next day, July 29, the flying telegraph line was completed to the junction of the Yauco and Sabana Grande line, a distance of 6 miles, and the Spanish line repaired from that point to Ponce, a distance of 23 miles. The line from Yauco to Ponce followed the railroad and was easily rendered serviceable by sending an engine and car, obtained from the railroad company, with a repair party from Yauco to Ponce. I accompanied that party, and by 4 o'clock had communication from Guanica to Ponce over our own wire. On the 30th offices were established at Tallaboa and Guyanilla.

The Fifth Company United States Volunteer Signal Corps, which was landed on the 28th at the Playa de Ponce, pushed on to Ponce; occupied the telegraph office that afternoon and cleared up some of the wreck left by the Spaniards, who having moved all the instruments, broke the office furniture, and nearly all the cells in the battery room. The next day, the 29th, this company cleared some of the lines leading

from the main office to the railroad station, where I had just brought the line in from Guanica.

The Ninth Company United States Volunteer Signal Corps, which having landed on the 28th and occupied telegraph and cable offices at the Playa, found the cable instruments destroyed and the loop from the cable hut on the beach to the office cut. This company, remaining in camp on the beach, cleared the circuit from the Playa to Ponce and established an office in the Aduana, where the headquarters of the army were located. It also established a signal station on the roof of the Aduana and placed signal parties on each of the transports in the harbor. This station giving immediate communication with each of the vessels, greatly facilitated the landing of the troops and supplies.

On July 30, Capt. C. C. Clark's company (Company D, regulars) was transferred from Guanica to Ponce on the *Stillwater*, while the animals belonging to it, which had been swum ashore at Guanica on the 25th, were sent overland to Ponce under charge of Lieutenant Talbott.

On the 2d of August, Colonel Allen returned from St. Thomas, when I reported to him and was instructed to take charge of the land communications in this part of the island. On August 3, Special Field Orders No. 13 were issued from headquarters of the army (copy attached marked B), establishing all means of communication under Colonel Allen.

Previous to this order the Fifth Company had been assigned to the Ponce office, and maintained, in addition, the office at Guanica, Yauco, Guayama, and Tallaboa. Its commanding officer was instructed to clear the line to Adjuntas and Utuado, where offices were opened respectively on the 2d and 4th of August. Lieutenant Wagner was directed to clear the line following the military road leading to San Juan, where, on the 1st of August, he opened a telephone station at Juana Diaz, which station was subsequently changed to a telegraph office as General Wilson's column advanced along this road. On the 5th, this entire company was relieved from Ponce and the outlying offices to the north and west, and assigned to the duty of maintaining communication along the line of General Wilson's advance to the eastward. On the 1st, a loop was run from the main office of the Calle del Sol and the Calle de la Salud to General Wilson's headquarters in the Calle Mayor, and maintained there until the 7th, when his headquarters were moved to the Rio Descalabrado, where the office was reopened on the 8th instant, and on the 9th the line extended to Coamo. This company maintained communication in a satisfactory manner, always keeping General Wilson's headquarters in telegraphic touch with the main office at Ponce, and furnishing constant telephonic communication between his headquarters and his advanced outposts, the extreme telephone stations being frequently located within range of the enemy's guns, and under fire on the afternoon of the 12th.

The Ninth Company, United States Volunteer Signal Corps, remained in camp on the beach at Playa until the 5th instant, where it repaired the loop from the cable hut on the beach to the cable office in the Calle de la Marina, and ran a separate loop for cable service to the headquarters at the Aduana. On the above date this company was moved to Ponce and relieved the Fifth Company, manning the offices at Yauco, Playa, Adjuntas, Utuado, and the main office at Ponce. It maintained a signal station on the roof of the Aduana, and kept signal parties on the transports until the 10th instant, when their services were no longer necessary.

The regular telegraphic train (Company D, United States Signal Corps) supplied working parties for general line repair in the vicinity of Ponce, and built a new line from the cable hut on the beach to the main office in Ponce, which permitted the location of the cable instruments in the same building with the telegraph office, and greatly facilitated the dispatch of all cable business. On the afternoon of the 11th telegraphic orders were received from the headquarters of the army, directing the establishment of telegraphic communication with General Schwan, who was at this time west of San Germain, and some twenty-odd miles beyond the end of our system. Up to this time it had not been thought necessary to establish communication with this column. Capt. C. C. Clark, with his characteristic energy, ably assisted by Capt. J. P. Wooten, loaded the train on the railroad and reached Yauco that night, repaired the line to Mayaguez by the 15th, rebuilding it in parts, and opening offices at Sabana Grande on the 12th, San Germain on the 13th, and Cabo Rojo on the 14th. Captain Clark, together with Captain Wooten and Lieutenant Dillon, deserve great credit for the rapid manner in which they rendered this line serviceable by overcoming almost insuperable difficulties caused by the weather and terrible roads. Subsequently, at General Schwan's request, he extended the line to Las Marias on the 23d instant. On the 1st of September Captain Clark was directed to return to Ponce with the train, leaving operators at the various offices and a repair station at Cabo Rojo. He arrived at Ponce on the 5th and reported to my successor.

The main office at Ponce was the center of the entire system and controlled five circuits, having approximately 170 miles (see map marked C): one to Juana Diaz,

Coamo, and to General Wilson's headquarters on the military road; one to Guayama and Arroyo, opened on the 9th, giving communication with General Brooke's headquarters; one to the Playa, where the headquarters of the army was stationed; one to Yauco, Mayaguez, and General Schwan's headquarters; and one to Adjuntas and Utuado, where General Henry was located. An idea of the importance of this office and the invaluable part that the telegraph played in this campaign may be judged from the fact that from the 7th to the 8th of August alone 4,613 messages were handled in the Ponce office. It would have been impossible to have transacted this large amount of business with dry cells and open circuit keys. The use of dry cells on an open circuit proved anything but satisfactory, owing to the difficulty of keeping instruments in adjustment, even on short lines. The adoption of this untried system was a risky experiment, owing to the instability of the dry cells and the inflexibility of the system.

The volume of business at Ponce necessitated the construction of a switch board, which was built by myself out of some strips of copper and parts of broken captured instruments. A photograph of this board, together with a view of the operating room at Ponce, and a phototopographic map of the Spanish position at Vibouto at the time of the suspension of hostilities on August 13, are appended and marked D, E, and F.

Although the operations of the Signal Corps were hampered by the lack of material for repair, maintenance, and operation of permanent lines (having material alone for the construction of flying telephone and telegraph lines), the command deserves great credit for its ingenuity in meeting and solving difficulties that arose during the progress of the work. We were, however, extremely fortunate in obtaining from the enemy sufficient glass jars, coppers, and zincs to install all the batteries necessary to operate the entire system.

Lieutenant Davenport, superintendent of the lines at Ponce, deserves great credit for the promptness with which he handled the cablegram from Washington on August 13, suspending hostilities, and the subsequent orders of the major-general commanding. The cablegram was received from the cable company at 10.34 a. m. and sent to headquarters of the army by 10.37 a. m.; the subsequent orders of the major-general commanding were received from Playa, and by 11.15 an OK was obtained from the headquarters of Generals Brooke, Wilson, and Henry. The message to General Schwan was OK'd by Yauco at 11.20 and delivered by special courier at daylight the next morning at a point 20 miles north and east of Mayaguez.

At the request of Captain-General Macias, and with the approval of the major-general commanding, I directed the establishment of a transfer office within our own lines at Coamo and opened communication direct with San Juan on August 29.

On September 2 I was relieved from my duties by Lieut. Col. W. A. Glassford, who was announced as chief signal officer of all the forces on the island by Special Order No. 14, First Army Corps, Guayama, September 2, 1898.

All the officers and men under my command deserve great credit for the intelligence, energy, and zeal with which they performed their duties and the successful way in which they maintained communication, and met in an ingenious manner difficulties which in ordinary telegraph and telephone practice are deemed insuperable.

I can not recommend too highly for the zealous and efficient manner in which they performed their multitudinous and difficult duties the following officers: Capt. C. C. Clark, J. P. Wooten, and H. H. Canfield, who almost ruined his health by his zealous application to duty; First Lieuts. Wilkie Woodard and Albert J. Dillon; and Second Lieuts. William M. Talbot, W. T. Davenport, and Max Wagner; and First Lieut. and Asst. Surg. Francis D. Patterson, Fifth Pennsylvania Volunteer Infantry, who unfortunately contracted typhoid and was invalided home.

Very respectfully,

SAMUEL REBER,
Lieutenant-Colonel, Signal Corps, U. S. A.

APPENDIX B.

SPECIAL FIELD ORDERS, }
No. 13. }

HEADQUARTERS OF THE ARMY,
Ponce, Porto Rico, August 3, 1898.

PAR. II. (1) All means of communication by telegraph, telephone, or otherwise, will be established and maintained by the Signal Corps under the direction of the chief signal officer at headquarters of the army.

(2) Corps commanders will establish and at all times maintain communication between their headquarters and headquarters of the army.

(3) The chief signal officer of each corps will furnish promptly to the chief signal officer at headquarters of the army a diagram of his system of communication between corps and army headquarters, indicating the method of transmitting intelligence and the area and distance covered. Any changes will be at once reported.

(4) All official communications offered for transmission must be written (except personal conversation over telephones between officers). These will be forwarded to the chief signal officer at army headquarters as soon as practicable after filing with the operators. Operators are positively forbidden to receive or transmit any but written communications.

(5) Lieutenant-Colonel Reber, United States Volunteer Signal Corps, will report to the chief signal officer at army headquarters. The Ninth Company, United States Volunteer Signal Corps, Captain Ives; the Telegraph Company, Captain Clark; and the Fifth Company, Captain Lamar, are hereby assigned to duty at army headquarters, and will be consolidated under the immediate command of Lieutenant-Colonel Reber, United States Volunteer Signal Corps.

By command of Major-General Miles:

J. C. GILMORE,
Brigadier-General, United States Volunteers.

APPENDIX 4.

REPORT OF LIEUT. COL. FRANK GREENE, UNITED STATES VOLUNTEER SIGNAL CORPS, CHIEF SIGNAL OFFICER FIFTH ARMY CORPS, OF THE OPERATIONS OF THE SIGNAL CORPS AT SANTIAGO DE CUBA, WITH SUBREPORT OF MAJ. G. W. S. STEVENS, UNITED STATES VOLUNTEER SIGNAL CORPS.

HEADQUARTERS FIFTH ARMY CORPS,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Santiago de Cuba, August 15, 1898.

The ADJUTANT-GENERAL, FIFTH ARMY CORPS,
Santiago de Cuba.

SIR: I have the honor to report as follows upon the duty performed by the Signal Corps in the operations leading to and resulting in the capitulation of the Spanish army commanded by General Toral, and the occupation of the city and province by the Fifth Corps of the United States Army.

The corps comprised two detachments with separate and distinct duties. First, a detachment of 35 men, under command of Capt. G. W. S. Stevens, United States Volunteers, to which was assigned the duty of establishing and maintaining communication between the commanding general and his division commanders and the supply depots. Second, a detachment of 23 men, under command of Maj. Joseph E. Maxfield, United States Volunteers, which was attached to the Fifth Army Corps by paragraph 21, S. O. 129 c. s., headquarters of the Army, A. G. O., equipped with a balloon, compressed hydrogen for inflation, and the necessary paraphernalia, to which was assigned the duty of observation and reports from the balloon in the air.

On June 6 30 men from Captain Stevens's detachment were placed on board 30 transports (1 to each), and from that time to June 25, whether in port, in convoy, or in the debarkation from the fleet, flag communication was maintained between the different transports and the flagship of the commanding general and the vessels of the naval escort squadron, all necessary orders being transmitted with celerity and precision.

On June 25 small details of signalmen, equipped with flags, heliographs, glasses, etc., were sent to report to headquarters of the First, Second, and Cavalry divisions, to the independent brigade, the light artillery battalion, and the mounted cavalry squadron, with the object of providing communication between separated parts of the forces, but the nature of the country to be traversed, with its narrow and few trails, the dense and high tropical growth obscuring the vista in all directions, and the absence of any commanding points upon which stations could be established, soon demonstrated to me that visual signaling could not be depended upon, but that communication could only be had and maintained by telegraph or telephone, so the men were withdrawn from the commands as soon as opportunity offered.

On June 27 a detail under Captain Stevens began the work of extending a telegraph line from Siboney toward Sevilla, using for the purpose a light rubber-covered cable having a core of seven steel and one copper wire, happily provided by the forethought of General Greely. The value of this wire can not be overestimated. Having no poles, and the chapparel being too slight to sustain the weight of a wire, the perfect insulation of the wire furnished enabled it to be laid upon the brush as far back from the trail or road as possible, or on the ground itself where no course was open and a clearing back from the trail could be found, and so long as it was not cut or broken communication by its means was perfect. This work, and in fact all the telegraph line construction and repair throughout the campaign, had to be

prosecuted without interruption on account of the state of the weather, sometimes under a blazing sun and at others under torrents of rain, when the narrow, bogged road became a roaring knee-deep water course.

On June 28 the balloon and material was landed at Daiquiri, placed in wagons and brought to Siboney; thence on June 29 to the headquarters camp about 3 miles west of Las Guasimas. The telegraph line passing from Siboney up the hill behind the town by the blockhouse, thence over the trail, joining the main Sevilla road at Las Guasimas, was completed to the headquarters camp on June 29 and telephone communication established, and on the same day the end of the cable between Santiago and Guantanamo, which had been cut by Lieutenant-Colonel Allen, Signal Corps, was landed at Siboney. By these means telegraphic communication through the necessary intermediate repeating offices was established direct between Washington and the headquarters of the commanding general at the front near Santiago de Cuba.

On June 30, under the personal direction of Major Maxfield, the balloon was inflated, and in the afternoon, after the daily thunderstorm had passed away, Major Maxfield made an ascension to an altitude of about 1,000 feet. Several other officers ascended afterwards.

An advance upon the enemy having been ordered for July 1, small details of 2 men each, equipped only with the flag and field glass, were sent the night before to each division commander and to the light artillery battalion and the mounted squadron of cavalry. On July 1, at 4.30 a. m., Captain Stevens and Lieutenant Burnell, Signal Corps, with a detachment of signalmen, began extending the telegraph line from the headquarters' camp to the front, a work of great difficulty, as the single narrow road was crowded with troops marching to the front, but by perseverance the line was pushed forward in the brush well to one side of the road so that it might not be disabled. Understanding that the advance headquarters were to be located at El Poso, I proceeded to that point early in the morning for the purpose of locating the station. It was intended to place the instrument in the abandoned hacienda of El Poso, and by 8 a. m. the wire was at that point, but located as it was, upon lower ground and some 150 yards in the rear of Loma del Poso, upon the crest of which Grimes's Battery was in position and in the line of fire from the enemy's battery replying to Grimes, it was soon evident that the telephone could not be maintained there, so the line was recovered and the instrument located in the shelter of the bank of the Aguadores River alongside the Sevilla-Santiago road, some 250 yards to the north of El Poso. The latter part of the work was performed under a smart shower of shrapnel, which continued more or less in the vicinity of the station all day. From the station orders were sent and received all day, and the line was carefully and constantly patrolled to guard against interruption. The rapid movements of the different divisions, the extent of ground covered, and the increasing advances, with the hard fighting all day, did not require the use of the signalmen, and I gathered them in as soon as practicable.

I have not received a report from Major Maxfield, commanding the balloon detachment and personally operating the balloon, but I know from my own observation that the inflated balloon was towed along the road toward the front by wagon, and that Major Maxfield, acting under orders, very gallantly took the balloon upon the skirmish line between the last crossing of the Aguadores River and the Rio San Juan, and there, with Lieutenant-Colonel Derby, engineer officer, who gave the orders, ascended and remained up under a heavy rifle fire and an excellently well-directed fire of shrapnel until the balloon was pierced many times and a descent was unavoidable. After descending the balloon was riddled and rendered totally unserviceable and of no further avail during the campaign. It is the first time a balloon has taken up observers on the skirmish line and will probably be the last time.

On July 3 the line was extended to the foot of what is known as the San Juan Hill, where were the headquarters of Generals Wheeler and Kent, thence to the headquarters of General Lawton, upon the right of the line of investment, and subsequently a branch line built from General Wheeler's to General Bates's headquarters, on the left of the line of investment. The maintenance of so many stations, with the constant patrol and repair to remedy faults both of accident and malicious disregard of the value of these indispensable lines, and the increasing sickness, required more men than the original detachment, so men were taken from the balloon detachment.

On July 7 I went to the mouth of the Aguadores River, found the telegraph line along the coast between that point and Siboney in good condition, and located and established a station about half a mile east of the railroad bridge, in a position screened from the fire of the batteries and rifle pits upon the Spanish side (right bank) of the river. Afterwards during every bombardment of Santiago by the fleet the plottings of the fall of the shots in the city were telephoned from the station near Loma San Juan to the commanding general, whose directions as to range and direction were in turn telephoned direct to Aguadores and at once flagged to the admiral.

On July 8 I went to Daiquiri, repaired the telegraph line between there and Siboney, and made ready to connect this line to the United States Government cable between Daiquiri and Playa del Este, better known as Guantanamo, which was laid for use in event of a denial to the Government of further use of the French cable. The denial did not take place and the Government cable was used only a very few times.

Captain Butler, with the Eighth Company, United States Volunteer Signal Corps, reported at Siboney on July 9, and his men were placed on duty at Aguadores, Daiquiri, Siboney, and the ammunition camp. From this time to July 17 the lines were constantly maintained in working order over their entire extent, comprising the line of investment with a line extending from the middle thereof through the corps headquarters and the different supply camps to Siboney, the land line from Aguadores to Daiquiri, and in addition the French cable from Siboney to Playa del Este, which had been seized temporarily by the United States, all the operators being soldiers of the Signal Corps. Those at the front worked and lived in mud and took their share of all hardships and exposure to fire with the remainder of the army.

Upon July 17, immediately after the occupation of Santiago de Cuba, the Spanish military telegraph line from Santiago was tapped at the junction of the Caney and Sevilla roads and extended into corps headquarters and communication opened, and afterwards, as requested, the different camps were connected by telephone.

Very respectfully,

F. GREENE,
Lieutenant-Colonel, United States Volunteer Signal Corps,
Chief Signal Officer, Fifth Army Corps.

WASHINGTON, D. C., August 24, 1898.

The CHIEF SIGNAL OFFICER, U. S. A., *Washington, D. C.*

(Through the Chief Signal Officer, Fifth Army Corps, United States of America.)

SIR: I have the honor to submit the following report of my movements and duties, dating from June 9, 1898, and covering the period to July 31, 1898:

Special Orders, No. 130, paragraph 49, A. G. O., Washington, D. C., June 3, 1898, reached me on the afternoon of June 8, and I left Fort Caswell, N. C., by the first boat available. This order directed me to report to Maj. Frank Greene, United States Volunteer Signal Corps, at Tampa, Fla. I arrived at Tampa June 10, at night, and finding that Major Greene was on a transport at Port Tampa, I reported to Major Reber, United States Volunteer Signal Corps, temporarily, and reported to Major Greene by telegraph for instructions. On June 11 I reported to Major Greene on board transport *Seguranca*, and, owing to lack of accommodations on this steamer, I was assigned to the steamer *Oliette*, hospital ship, for quarters. This last steamer was watering the fleet and uncertain in her movements, and I was therefore compelled to remain on board lest I should be left on departure of the fleet. I assumed charge of the flag and code communication on the vessel by direction of Chief Surgeon Appel, commanding.

During the passage to Santiago this steamer was supposed to visit daily each vessel in the fleet and receive the sick. This entailed constant communication all day, and the available signal party of one naval cadet, one private of the Signal Corps, and myself were needed day and night.

The fleet having arrived off Santiago, I remained on board with the party till ordered by Major Greene to come aboard the *Seguranca*, on the evening of June 26.

On the morning of June 27 I landed at Siboney with a party of eight members of the Signal Corps and 10 miles of wire and two type D kits, with directions from Major Greene to repair the telegraph line up the valley road to Sevilla and as far beyond Sevilla as the commanding general at or near that point might direct, reporting to Major-General Wheeler, United States Volunteers, for signal duty, and to maintain connection with headquarters at Siboney, and then to send back the men to the *Seguranca*. (Later it will be seen that the men had to be retained, and that these directions were changed of necessity.)

I was to have the services of one packer and two pack mules, which were to join me at Siboney during the afternoon, when the headquarters train should pass through that place.

Reports of the existence of a broken line along the road from Siboney to Sevilla had come in to the headquarters of the Corps. It was supposed, presumably, that the line could be quickly patched, and the detachment was landed without arms, without blankets, and with one day's rations. I was most agreeably surprised to find the wire furnished me to be insulated 7-strand wire. Owing to the absence of the telegraph section, the party had but their hands and one pair of pliers—no climbers, tackle, brackets, or tools. Immediately on landing I occupied the old

telephone room of the Juragua Iron Company, and found that attempts had been made to destroy the telephones, also that some telephones reported to exist in a hut near the blockhouse partly up the hill west of Siboney had been removed. I set men to work tracing out an available wire to the blockhouse, others repairing telephones and running a ground wire at the building, and stationed a man to make sure of obtaining the pack animals as the train passed Siboney. I personally started with Sergeant Capron up the valley road to find the supposed line. After going some distance this line failed to materialize and I returned to Siboney. There I heard mention of a line over the hill trail to La Guasima. The packer and the mules arrived in the afternoon. I had by this time anticipated what proved necessary in the end, the building of our own line of wire. As I had 10 miles of wire, and supposed at the time that this was my limit, I calculated that I could barely reach Santiago, and determined not to waste time and wire if possible. The valley road was winding, and I proceeded to trace out this road and also the trail over the western hill, which joined the valley road at La Guasima. I took the packer as a guide and mounted one of the pack mules, followed up the trail over the hill as shown by the black line in accompanying map, and found no wire. I then came back down the valley road and found the remains of two wires in places. These were utterly useless and would have caused faults; they were overgrown with vines and no available stretches existed. This line showed evidences of being abandoned for some time. This proved correct; the Spaniards had used the railroad line along the sea front from Siboney to Santiago. The telephone room at Siboney had wires marked "C," meaning "Cuba," or Santiago, and "F" meaning Firmeza, a little village up near the mines in the hills. The line from Siboney to Daiquiri ran over the bluffs near the sea, and also another line to Daiquiri, I believe, ran in the valley behind the bluffs, in part along the Juragua Iron Company's railroad. (This railroad does not run to Daiquiri, as supposed by some, but to the mines in the hills. At Daiquiri a different company has another road running to its mines. The Siboney-Santiago road is narrow guage, the road at Daiquiri is broad guage. In each instance they run eastward from Siboney to Daiquiri, respectively, and then across the valley road, and turn westward into the mountains and reach their respective mines.)

Undoubted proof of the disuse of the valley lines from Siboney to El Pozo is shown by the accompanying list of telephone calls dated July 28, 1897, and taken from the San Juan blockhouse, the last station held by the Spanish before their enforced retreat into Santiago. This list of calls shows that El Pozo was the nearest station to Siboney on the road over which the American army advanced. On reaching Siboney, after this examination, I started a party running our own wire from the blockhouse on the hill northwest of Siboney up the trail and over the ridge, as shown by black line. The men had to carry the heavy coil as they laid the wire, and it was a tedious and difficult work. I had the packer take up several coils on his mules and distribute them ahead on the trail, for a mile could be saved by this trail in reaching La Guasima.

It became evident that not only had the line to be built in toto to secure freedom from faults and constant trouble, but that it would be a lengthy piece of work unless something could be devised to help. The line was passed over the crest of the hill that evening; a telephone had been made from the wrecks of instruments, and all connections made in the building, including a good ground. Private Kinkaid had been on shore and joined my detachment by order of Major Greene. This soldier had used his time well, and hunted out the railroad supplies, found salammuniac, bluestone, cells, zincs, and coppers, and had followed down the wires along the railroad toward Aguadores till he was fired on by the Spaniards. I now more than ever regretted the absence of keys, sounders, and telephones. Nothing but pieces of an old printing telegraph instrument could be found. The night was spent by the detachments as best they could.

On the morning of the 28th I started a party to continue the wire as best they could, while Sergeant Dillon with an assistant endeavored to make some kind of a reel for carrying wire and paying out. The coils were difficult to handle when once broken and unrolled by hand. I applied to General Garcia in person, asking for a machete, our passage through brush being impossible in places and the instrument being an absolute necessity. I was refused, but was offered the services of two Cuban soldiers "who could cut for me." Sergeant Dillon cleverly managed to make a sort of litter having a pivoted reel in the center, enabling men to carry the coil while one unwound it. After this the party managed to make more headway. The Cubans proved a waste of time, requiring valuable time to explain to them what I wanted and to get the work done with celerity. The dense undergrowth proved very useful, for by using a pole with a fork at its end the wire could be thrown over the higher brush and thus be above the ground; moreover it was free from interference. By this process some 2½ miles were laid this day. I found on ascending the hill early that morning that the line had been broken at the blockhouse near Siboney, apparently purposely. I mended it myself securely, and as each half-mile coil

was laid the type D kit was used to test back. Men were left at Siboney to use the station instrument and to draw rations.

The type D kit worked with fair success only up to the end of the day's work, some 2½ miles from Siboney. The detachment marched into Siboney this night and again slept as best they could. The Cubans had proved of so little service that I sent one away and told the more intelligent one to report at 5 a. m. next day. This individual failed to report on the morning of the 29th till about 9.30 a. m. I started the detachment to pick up the work and remained at Siboney to obtain a machete. I made another appeal to General Garcia and failed to attain my object. I finally impressed upon his adjutant-general the importance of the work and the fact that I was losing time and wished the instrument and not the Cuban. I finally obtained this second day an old machete, though I took one Cuban along, and continued the work.

Lieutenant Burnell met me this day at La Guasima and offered to assist with the men attached to General Kent's headquarters, the general having no use for the signal party at the time and kindly allowed Lieutenant Burnell to join me. This gave me much-needed assistance, as my own party was small. Each day we had not only the natural obstacles to overcome, but suffered the daily deluge of rain, and as we worked from early morning till dark, we were wet continually and often stayed wet at night. The absence of blankets and protection proved trying, but none of us worried over the physical discomforts, our interests being so keen and all of us being too busy to think much of such things. I had, of course, by this time seen that Siboney was no longer to be reached by us as a camp. The party had acquired an old kettle, and henceforth we lived and camped wherever we happened to stop.

The chief signal officer had authority to call for assistance of men from commands should it be necessary, and on this day I was passed by the commanding general between Sevilla and La Guasima, and he gave me personal directions to call on any commander or organizations for men. I needed more men, but I felt that the men familiar with the work would do better, even if few, than strangers would. After Lieutenant Burnell met me I arranged with him to go ahead of me and begin laying wire from General Kent's headquarters on out the road, passing General Wheeler's headquarters and aiming at reaching the corps headquarters. I sent wire ahead to Lieutenant Burnell by the little pack train, and he with his party began about a mile beyond Sevilla, near what I presume must have been General Wheeler's division camp and the artillery camp of the 29th and 30th of June. Meantime I continued on from La Guasima through Sevilla, and at dark reached a large encampment in which I noticed the artillery, Colonel Wood's cavalry regiment, and some other troops at K K. It had become understood now that the line was to go on out as it was needed. I found Lieutenant Burnell's starting point just at dark, and found a problem in crossing the large open spaces around this camp, for as will be seen with this splendid wire the main danger was open spaces and the difficulty of erecting poles. Where heavy chaparral existed the line was safe, and with a machete and the help of an occasional tree, we had a very good line. I had changed the type D kit and taken a type A kit in hopes of better results, and had tested back as usual. Major Greene joined us about 1 p. m. this day and talked with Siboney.

When my party reached K the darkness and the exhaustion of the men prevented any further work. Early the morning of the 30th one of the men accomplished the feat of climbing one of those very tall palms, and from this a long reach was obtained for the wire. A couple of improvised poles carried the line to a tree, and here the forward section of the line was joined, and the headquarters of the Fifth Corps in the field was connected by wire with America, Lieutenant Burnell having reached A. Near this place were several of the division and brigade camps, and I had the pleasure of informing the adjutant-general Fifth Corps that the line was at his disposal. However, on this day the field instrument caused me much misery. First someone cut the line near Siboney, taking about 20 yards of wire.

Patrols had been arranged, and two men went from A into Siboney. These men repaired the break; but even after this the getting through of messages was sometimes tedious and difficult with this instrument. I knew that the line was good, and indeed a splendid one, with no faults unless tampered with, or perhaps accidentally cut by pack trains at a few points. The horses had been left at Tampa, and were sadly needed, as patrols had a round trip of some 15 miles, and it was slow work. Indeed, my own supervision was hampered, as I could not move with the desired facility.

At A during the 30th of June I found several Signal Corps men and wrote to General Young asking him to let me have his party if not needed by him. This he very kindly complied with. I was anticipating the running of the line farther out and the necessity of equipping the stations with operators. Some men had already gone to Guantanamo and some were at Siboney. I collected this day about twenty men, but on the evening of the 30th of June the detachment was again divided up, the commanding general desiring parties to be attached to each of the following bodies

of troops: The First Division, the Second Division, the Third Division, the cavalry division, and Major Rafferty's independent cavalry. The artillery brigade had already its men. These parties were named and directed to join at dawn on July 1.

During the afternoon of June 30 I received directions from the commanding general to run the line the next morning to the sugar mill and to El Pozo, it being expected to make this the field headquarters for July 1. Grimes's Battery was stationed at El Pozo, and I walked over the route and had my first glimpse of Santiago from this position. The wire had already been run down the road past the division hospital, and early on the morning of July 1, with Lieutenant Burnell and the remains of the detachment, the line was prolonged to the sugar mill and stretched to El Pozo building, but the Spanish shell fire was so accurately covering this space that the building could not be used, and the sugar mill near by and about 200 yards to the right of and below Grimes's Battery became the field headquarters. The line was tied up to a tree behind the battery and then tapped at the bank of the creek at the sugar mill for a station. From this station we then had communication with A and with Siboney.

During the day of July 1 the packer appeared at the sugar mill with a long-distance telephone sent by the chief signal officer. It was a great pleasure to see it, for it at once assured perfect communication; after this there was no further trouble. Indeed I was so afraid that this instrument might be struck by fragments of some shell that I had it placed with its connection under the bank, and for a time it was used thus. It was brought out after the firing ceased. During the construction of the line the small pack train had rendered most valuable service, bringing out wire and placing it at intervals ready for use. The packer, Anderson by name, was a most willing and intelligent man and proved of great assistance in many ways; he worked untiringly till he was finally taken down with fever and was replaced by another man.

The chief signal officer informed me that there was more wire and had a supply sent out from Siboney, so that there was plenty for all emergencies. I had given directions to the patrols to, if possible, board the *Seguranca* at Siboney and get blanket rolls of the men. This was accomplished and the camp at the sugar mill station became more habitable.

A slight description of the relative positions of the points marked on the sketch is necessary. San Juan is really nearer the city, and the position of Grimes's Battery and El Pozo should be nearer Santiago. The distance between Sevilla and K and A should be greater than shown. The creek does run parallel to the trail at the sugar mill, and a trail should come in here from the north. The sketch shows this last trail as coming in farther up toward Santiago.

Major Maxfield kindly loaned me several men after the destruction of the balloon on the 1st of July.

On the morning of the 2d of July, by directions received from Lieutenant Miley, aid to the general commanding, the line was carried to the San Juan River at F, the station at C being still maintained, and on the afternoon of the 3d, under direction of the chief signal officer, Major Greene, the line was carried forward, and at H a station was established at the headquarters of General Wheeler, at the American trenches on San Juan Hill. From this point the line was afterwards carried right and left to the headquarters of Generals Lawton and Bates, respectively, thus connecting by wire the center and both flanks of the American trenches with America. I am unable to give any dates on which the last was done, as I was so ill on the 4th of July as to be compelled to lie down, and I do not know what took place. I remained at the sugar mill some days and finally went into Siboney, hoping to get relief by getting off the ground. I had supposed that it was a temporary illness, but yellow fever developed after malarial fever and I was sent to the fever camp in the hills, where I remained until the 23d of July, when I was sent home on the *Concho* by the medical authorities at Siboney.

Several of the detachments went into the hospital, and most of the men felt badly at the end. As time went on the original signal detachment was pretty well distributed at stations, and I believe the balloon detachment was eventually used in laying lines.

On the night of July 2 the night attack by the Spanish and the fire of our own lines looked from Grimes's Battery like a flank movement, and the balloon detachment and what men I had were collected and armed with rifles picked up from the roads and then formed under Major Maxfield with a view to protecting the outlook of the trail from the north at its juncture with our line of communication. All stragglers were impressed and guards were established for the night.

The line as I last left it had stations at Siboney, at A, at sugar mill, C, and at H. General Wheeler's headquarters. This line had all of its telephones in series at that time. I understand the line was carried out to General Lawton's headquarters on the right and this instrument placed in series, while the line to the left was made a separate circuit with an instrument, probably a type A or type D at H. Attached

is a photograph from Harper's Weekly which is incorrectly titled. On reaching San Juan with our line, Major Greene discovered the Spanish telephone under the Santiago side of the blockhouse, and with his approval and the permission of the officer in charge I, with much delight, put it under my arm and carried it off. It was the last station instrument used by the Spanish, and they had evidently no time to destroy it. In the photograph this instrument is standing at the foot of the tree where I placed it on July 3, and it was eventually used at General Lawton's headquarters on the right. The photograph represents the station at the foot of San Juan Hill.

I can not speak too highly of the behavior of the men in the detachment. They were not only intelligent and without thought of comfort or self, but anticipated everything. It was a great pleasure to me to serve with these men. Lieutenant Burnell pleased me very much, and I am indebted to him for much assistance and cheerful service. Many of the men were under fire at some time, and I experienced the pleasure of hearing officers voluntarily speak very highly of them. In all the work done by my detachment everything went smoothly and the establishing of the line was accomplished without a setback.

The insulated wire enabled the line to be built. With iron wire and no equipment the line would have been not only endlessly delayed, but have given much trouble, if successful at all. The dense undergrowth proved a help, for we were enabled to run long stretches of wire by placing it in comparative security in forks and in the tops of small trees. The pack train saved us more time than anything else. A wagon would have never proved as mobile. Indeed, I should most earnestly recommend that a couple of pack mules be attached to each section. The absence of the horses proved a loss, especially to the patrols, and in this very rapid movement on Santiago the line needed rapid patrolling, owing to the small number of men available for the work. The operators were busy day and night, and assisted during the day in laying lines. Even a guard was used on two nights at the Sugar Mill station, so that the men were pretty thoroughly worked. I can not make mention of individuals in the detachments, as the men were all so gratifying in their behavior that I was proud of them and of the corps.

The number of men was far too small for the attendance on the corps had the campaign proved more extended. The men could not stand a lengthy continuance of each effort in the climate. Indeed, the fortunate supplying of the insulated pliable wire and the jungle enabled us to accomplish the work with celerity. If to the situation above described the continued necessity for flag and heliograph parties had existed, the demand could not have been complied with. At least three men were required at stations to operate telephones, day and night, and to occasionally carry messages. We met with most kindly interest and assistance on the part of the officers at corps headquarters.

I have attached a brief summary of the progress of the line.

Very respectfully, your obedient servant,

G. W. S. STEVENS,

Major, United States Volunteer Signal Corps.

SUMMARY OF PROGRESS OF TELEPHONE LINE FROM SIBONEY, CUBA, TO THE AMERICAN TRENCHES IN FRONT OF SANTIAGO DE CUBA.

June 27, 1898.—The detachment of 8 men landed in forenoon, equipped station, reconnoitered roads, and ran the line from Siboney up and over the ridge to the northwest of that place.

June 28.—The line was extended to near Las Guasimas.

June 29.—The line was established through Las Guasimas to Sevilla, past Sevilla to headquarters of the cavalry division, and from this point to corps headquarters, a mile short of El Pozo or the Sugar Mill.

June 30.—The line was in use and was patrolled to and from Siboney, and the detachment was subdivided for service in the battle of July 1.

July 1.—The line was extended to El Pozo and the Sugar Mill, and was used from this point at field headquarters during the battle of July 1.

July 2.—The line was again carried forward to San Juan River, by some called the Agnadores River. (See map.)

July 3.—The line was carried to San Juan Hill and the center of the American trenches.

Later, on dates unknown to me, the line was extended to both flanks of the American trenches.

APPENDIX 5.

REPORT OF LIEUT. COL. JOSEPH E. MAXFIELD, UNITED STATES VOLUNTEER SIGNAL CORPS ON WAR-BALLOONING AT SANTIAGO DE CUBA.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, September 10, 1898.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding Fifth Army Corps, Montauk Point, New York.

SIR: I have the honor to transmit for your information copy of a report made by Lieut. Col. Joseph E. Maxfield, United States Volunteer Signal Corps, who was obliged to leave Cuba owing to sickness.

This report was made by my orders in order that there might be on file in this office a report of the operations of the balloon train of the Signal Corps during the siege of Santiago de Cuba.

Very respectfully,

A. W. GREELY,
Brigadier-General, Chief Signal Officer.

[First indorsement.]

HEADQUARTERS FIFTH ARMY CORPS,
Camp Wikoff, Long Island, September 18, 1898.

Respectfully forwarded to the Adjutant-General of the Army. The services rendered by the balloon detachment as well as by the whole of the Signal Corps was satisfactory.

WM. SHAFTER,
Major-General, United States Volunteers, Commanding.

JACKSONVILLE, FLA., August 20, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.
Washington, D. C.

SIR: I have the honor to make report of the operations of the balloon sections of the Signal Corps during the present war with Spain.

Pursuant to telegraphic orders, I was relieved from duty as signal officer, Department of the Lakes, on April 13, 1898, and left the same night for Governors Island, New York, where I reported to the major-general commanding the Department of the East for duty. I was instructed to put the balloon equipment of the Signal Corps, which had been shipped from Denver to Fort Wadsworth, N. Y., in thorough repair, it being intimated that a balloon might be employed at Sandy Hook as a means of obtaining early notice of the approach of an enemy's fleet. Shortly after, however, I was informed by the Chief Signal Officer that an allotment for the equipment of a balloon train had been obtained, and was instructed by him to thoroughly equip a balloon train for the field. Shortly after these instructions were amended so as to require the equipment of two trains instead of one.

The apparatus already in the possession of the corps embraced 1 silk balloon, 1 small generator (which was out of repair), 1 small gas compressor (also out of repair), 180 steel tubes for holding compressed hydrogen, 1 balloon wagon, 1 wagon for the carriage of tools and miscellaneous supplies, and 5 wagons for the carriage of the gas tubes. Both the compressor and generator, while large enough for use for purposes of instruction, were too small to give good results in actual service.

The plan adopted looked to the organization of 2 balloon companies, each equipped with 2 balloons, 1 generator for hydrogen gas, and 160 tubes filled with compressed hydrogen, together with the necessary wagons for the carriage of the apparatus and the material used in the manufacture of gas. In addition, a permanent gas plant was to be installed at the base of supplies, consisting of a generator and compressor of large capacity, to which the gas tubes could be sent for refilling after use. I was informed by the Chief Signal Officer that the necessary wagons, aside from those already belonging to the service, would be procured from the Quartermaster's Department, and that bids for additional gas tubes had already been invited by the disbursing officer of the Signal Corps. Apart from these, all necessary apparatus and material was to be ordered by me. Both in the repairing of the apparatus already on hand and in the ordering of new, great difficulty was had in finding firms who could, without delay, perform the necessary work. In spite of these difficulties, by the middle of May all the apparatus on hand at the beginning of the war had been placed in thorough repair, the work upon the new apparatus was approaching com-

pletion, and orders had been placed for the necessary tools and material for the generation of gas.

During the latter part of this work I had the assistance of Mr. L. B. Wildman, aeronautical engineer, afterwards first lieutenant, United States Volunteer Signal Corps. As fast as the materials and apparatus were ready they were shipped to Tampa, Fla., at which point it was decided to erect the permanent gas plant, at least temporarily. Much delay occurred in the shipment of the balloon material from Fort Wadsworth, owing to its great weight and the lack of men to properly handle it, the garrison at that time being small and engaged in other work.

In addition to having placed in thorough repair all the apparatus on hand, there was purchased 1 portable gas generator, 1 semiportable generator of large size, 3 balloons, 1 compressor of the capacity of 25,000 cubic feet per day, 1 large sheet-iron gasometer, 5,000 feet of balloon cable, an additional cable reel so designed as to be easily placed in an army wagon and dismounted at will, 1 portable boiler for the operation of the gas generator, 1 large stationary boiler for the operation of the compressor. In addition there was also purchased a large variety of tools of all kinds suitable for working both in wood and metal, to enable repairs to be readily made in the field. Large quantities of iron turnings and sulphuric acid for the generation of hydrogen were also shipped to Tampa. By the middle of May all orders had been placed and work had progressed, so that it was possible for me to leave New York and to proceed to Tampa for the purpose of organizing the balloon companies. As I was at the same time acting as censor over the cables terminating in New York, and as the Volunteer Signal Corps had not been organized at that time, I was informed by the Chief Signal Officer that it would be necessary for me to remain in New York for some time longer. I did so remain until May 31, placing the work of inspection of the apparatus undergoing construction under the immediate supervision of Mr. Wildman.

Under telegraphic instructions I left New York on May 31 and proceeded to Tampa, Fla. On reporting there to the Major-General Commanding the Army, I was informed that it was desired to send a balloon train with the expedition at that time fitting out for Santiago de Cuba, and was by him directed to report to the major-general commanding the Fifth Army Corps. Upon so doing I was informed that I had but two or three days in which to organize a company and get the necessary apparatus and material ready for transportation. At this time there was under my command not a single officer or man, and it was found that the articles pertaining to the balloon equipment which had been shipped from New York had not been unloaded from the cars at Tampa, but were at various points in the railroad yards at Tampa and vicinity. On applying to the depot quartermaster at Tampa I was informed that he knew nothing of the shipments, but was given permission to go over the bills of lading in his office. On some of these bills of lading it was found that the number of the car in which the goods had been shipped was missing, and it seemed almost a hopeless task, in the short time available, to locate and get together the necessary equipment for the Santiago campaign. The depot quartermaster, however, immediately detailed a clerk who, in conjunction with the railroad officials, traced and found most of the cars containing the balloon material, while Major Greene, United States Volunteer Signal Corps, placed at my disposal three army wagons and a small force of men. A detail of 30 men from an infantry regiment was also secured. The five tube wagons pertaining to the balloon train were unloaded first, giving me eight wagons in all. With these the work of unloading progressed rapidly, and on the night preceding the departure of the troops from Tampa to Port Tampa all the material necessary for the equipment of a balloon train had been gotten together. Ten men of the Signal Corps, United States Army, from Chickamauga, 4 from Atlanta, and 10 from Major Greene's command at Tampa, had in the meantime reported to me for duty. Major Greene also placed at my disposal the services of Second Lieut. George C. Burnell, United States Volunteer Signal Corps, and the promotion of Sergt. Walter S. Volkmar to the grade of second lieutenant gave me two officers. Two cars containing the gas tubes and some of the heavy material were not unloaded, but at my request were shipped by the depot quartermaster to Port Tampa. Request was made for two cars upon which the other necessary apparatus and stores could be loaded, and I was informed that these would be ready at the yards of the railroad company at 10 o'clock that evening. These cars, however, could not be found at the designated place when the loaded wagons arrived there, but by going directly to the yardmaster of the railroad company two other cars were secured, and all property except camp and garrison equipage and rations were loaded thereon before 3 o'clock in the morning. Requisitions had in the meantime been made for necessary tentage and ordnance property to equip my small command. All the necessary tents were secured, but practically no ordnance supplies could be had, and the command sailed from Port Tampa with but a portion of the men equipped with a mess outfit, while none of them had any arms. In order to be sure that no delay would arise in the shipment of tents and rations to Port Tampa, these were sent over the road by

wagon together with the men of the command. I myself left for Port Tampa at 4 o'clock the same afternoon, but did not reach there until after 9 o'clock, owing to the delay caused by the passage of troops trains. The next day was the one devoted by the troops to the loading of the transports. It was found that no assignment to any transport had been made for the balloon detachment, and it was only after some time and by the order of the commanding general that such assignment was obtained. The cars containing the balloon material were found early in the morning, and by placing an officer upon the train of which they formed a part, these cars were at last brought opposite the designated transport, the *Rio Grande*, and the supplies unloaded. Loading upon the transport at once began, but owing to the fact that the carboys of sulphuric acid could not be placed in the hold but had to be hoisted up over the ship's side, it was not until the next morning that the loading was completed. Lieut. James R. Steele, United States Volunteer Signal Corps, reported to me before the sailing of the expedition.

On June 22 the landing of the troops of the expedition began at Daiquiri. The order of landing, as issued by the commanding general, prohibited all persons not serving immediately with organizations designated in the order from landing, and the balloon detachment remained on board the transport until June 28. On June 27, I was informed, verbally, by Maj. Frank Greene, United States Volunteer Signal Corps, chief signal officer of the Fifth Army Corps, that the major-general commanding directed that the balloon detachment should land and proceed to the front for the purpose of making a reconnaissance from the balloon. Request was at once made for authority to land the generator with the necessary acid and iron-turnings, and to inflate the balloon at the landing place and tow it to the front after inflation. The object of this was to keep the compressed gas stored in the cylinders as a reserve, as, if these were once exhausted and the generator was not landed, but one inflation of the balloon could be made. This request was refused. That evening, as soon as the necessary facilities could be obtained, the landing of the balloon and the gas cylinders was begun. Before all the tubes had been placed upon the lighter the sea became extremely rough, and after one man had fallen overboard and was rescued with great difficulty, it was found necessary to delay the unloading until the next morning. Landing was completed on the morning of the 28th, the equipment loaded upon seven army wagons, and the march to the front began. Owing to the condition of the roads it was found necessary several times to partially unload the wagons at bog-holes, and it was not until that night that Siboney was reached. I reported to the commanding general that night and received instructions to continue the march the next morning and report to him at whatever point should be established as his headquarters upon my arrival. The detachment reached headquarters early in the afternoon of the 29th, but a heavy rainstorm prevented any work being done with the balloon that day. On the next day the balloon was spread. It was found that the extreme heat had softened the varnish so that the two sides of the envelope were stuck together. It was also found that either from scorching or the use of improper varnish portions of the balloon were badly rotted. This balloon was the old balloon in the possession of the corps at the beginning of the war. After the envelope had been fully spread, numerous small holes in it were found, as well as several rents of considerable extent. It was in such condition that had the ascents to be made in time of peace it would have been felt unsafe to use it. The rents were carefully sewn and covered with adhesive plaster and the balloon inflated. Three ascents were made that afternoon—the first by myself and Sergeant Baldwin, Signal Corps, United States Army; the second by Second Lieut. Walter S. Volkmar, General Castillo, of the Cuban army, being carried as a passenger; and the third by the chief engineer officer of the Fifth Army Corps and myself. These ascents resulted in an increase of knowledge as to the direction and course of roads and streams immediately in our front. The fact that the Spanish fleet of Admiral Cervera was in the harbor of Santiago was at last definitely settled. It could not be determined, however, how strongly the fortifications in our front were held, nor could they be located except with the greatest difficulty. A most flattering verbal report as to the value of the balloon in war was made by the chief engineer officer to the commanding general, with the recommendation that it be employed during the battle planned for the next day. That evening verbal orders were brought me by the chief engineer officer of the Fifth Army Corps from the commanding general to report with the balloon, at as early an hour as practicable, at El Poso, which was to be the headquarters of the commanding general during the battle, and that there I would find the chief engineer officer who would accompany me in the ascents. The balloon was secured in the most sheltered place possible for the night, and the detachment rose at daybreak and proceeded to replace the gas which had been lost during the night. It was also found that new rents had been caused by the wind during the night, which had to be repaired before the balloon could be used. As soon as these repairs were completed the detachment took up its march for El Poso, towing the balloon by means of captive ropes. On arriving at the foot of the hill at El Poso

the detachment was halted, and I rode up on the hill for the purpose of finding Lieutenant-Colonel Derby, the chief engineer officer, and selecting a suitable place for the ascension. Upon reaching the summit of the hill none of the officers attached to headquarters were visible, and it was found that the hill was covered by a slow, but remarkably accurate, shrapnel fire from the enemy's guns. I rode over the hill in search of headquarters, my horse being shot just as I turned to regain the base of the hill. Here I met Lieutenant-Colonel Derby, and the balloon was carried to a place in the river bottom, about a quarter of a mile to the rear, and an ascent made, Colonel Derby and myself occupying the basket. From this point a message was sent to the adjutant-general of the corps, setting forth the movement of troops both at El Caney on our right and upon the road to our front, which led to the hill at San Juan. Under orders from the chief engineer officer, the balloon was then pulled down to within a few hundred feet of the ground—the occupants of the basket still remaining in it—and towed toward the front until a more suitable position for viewing the intrenchments at San Juan could be found. It was supposed that the balloon would be halted at El Poso and that point taken as a station for the balloon detachment, as had been originally intended. As this was not done, a statement was made by me as to the results of artillery firing at balloons in experimental work abroad and the conclusions to be drawn from such, and the fact stated that in my opinion it was unwise to carry the balloon farther to the front. No formal protest, however, was made, as it was felt that the chief engineer officer was the representative of the commanding general and that his desires were to be carried out. As a consequence, the balloon was carried rapidly to the front until it was immediately in the rear of the troops, who were then deploying for an attack upon the block-house and trenches on the San Juan Hill. As no further progress to the front could be made, the balloon was then carried across the bed of the San Juan River and into a large meadow just to the right of the road and river.

In passing through the trees and brush along the river banks the ropes holding the balloon captive became badly tangled in this brush, and no movement for a time was possible; nor, for the same reason, could the balloon be given the necessary elevation to enable it to do its best work. Nevertheless, from this position the fact was determined that the intrenchments on the San Juan Hill immediately in our front were strongly held, and a message to this effect sent to the commanding general with the suggestion that the artillery upon the hill at El Poso should reopen its fire upon them. This was done. The attention of the occupants of the basket was given almost solely to an examination of the ground held by the enemy and that immediately in their front, and it is impossible for that reason to state what was the disposition of our own troops in the immediate vicinity, most of whom were hidden by the brush. It was noticed, however, that dismounted cavalry were deploying in the open meadow in which was the balloon, about 50 yards in our front. It was at that time that the enemy opened fire. This fire appeared to be musketry alone. In a very few minutes it became apparent that the balloon had been struck, as there was a decided loss of gas, and the rope having not yet been cleared from the brush I gave the order that the balloon should be pulled down, hoping to be able to disentangle it, carry it to the rear, repair the holes in it, and replace the lost gas from the tubes which still remained full. This order was obeyed, and for twenty or thirty minutes the detachment was busy endeavoring to disentangle the captive cord and extend it along the bed of the river. During this work the detachment was exposed to a heavy musketry fire, from which they were fortunately fairly well sheltered by the banks of the river, and although the leaves oftentimes fell in showers from the bushes and trees overhanging the bank, but one man, Private Heywood, Signal Corps, United States Army, was struck, he receiving a wound in the foot.

An examination of the balloon having shown several holes in the upper portion, and the loss of so much gas as to render the further use of it impossible, orders were given to secure it and to retreat along the river bottom. This was done, and the detachment in a short time reported at El Poso. Later in the day Second Lieut. Walter S. Volkmar was instructed to make an examination of the balloon and report whether it had been so badly damaged as to render its recovery useless. He reported that the gas had entirely escaped and that there were numerous holes and rents in the envelope, which would render it totally unserviceable for future use in the field where facilities for repairs upon a large scale were lacking. He, however, folded the balloon and placed it in the basket, and it was afterwards recovered and brought to Siboney. During the rest of the day and evening of July 1 the detachment was employed in relieving armed men coming to the rear with wounded soldiers, and in any way in which it was thought they could be useful. On the next day a portion of it was directed to report to Maj. Frank Greene, chief signal officer, Fifth Army Corps, for duty in connection with telephone work. A detail was also made from it for the purpose of carrying some rapid-fire guns to the front. Until the morning of July 3 the detachment remained camped at El Poso, at which time it was marched back to the headquarters of the commanding general and there went into

camp. A cablegram having been received from the Chief Signal Officer stating that a new balloon had been shipped me which would soon arrive at Santiago, a report of this fact was made to the commanding general, who informed me that no further work with the balloon would be necessary in the present campaign. Request was made on the same day, through Maj. Frank Greene, chief signal officer, for permission to ship back to Siboney and to the United States the empty gas tubes, so that they might be refilled and be available for further work at the earliest possible moment. This permission was refused on the ground of lack of transportation.

On July 5 the detachment, with the exception of six men who were detailed for work upon the telephone lines under Maj. Frank Greene, Signal Corps, was marched to Siboney for the purpose of storing the balloon, reel, and apparatus other than tubes. Here it was found that Lieut. Col. James Allen, United States Volunteer Signal Corps, to whom, in compliance with orders, I had reported by letter upon my arrival at Tampa, was at Guantanamo on the cable steamer *Adria*. A cablegram was sent him, requesting an interview relative to the future operations of the balloon sections, and asking if he could come to Siboney, as I had no means of reaching Guantanamo. Colonel Allen reached Siboney that evening and immediately made request to the commanding general for detail of myself and ten men of my command to aid in the laying of a submarine cable from Daiquiri to Guantanamo. This detail having been made, I left Siboney upon the cable steamer *Adria* that night with the ten men, the remainder of the detachment being ordered to repair the Spanish telegraph line from Siboney to Daiquiri, so that it could be used in conjunction with the new cable about to be laid. On July 14 I returned to Siboney, where I was joined two days later by the absent members of my command. Permission was again requested to transport the gas tubes, which had been left near Sevilla, to Siboney and thence to the United States. This was granted, and on July 16 the detachment was marched to Sevilla and the tubes loaded upon wagons which were returning empty from the camps at the front. The cable steamer *Adria* having been ordered back to the United States, these tubes were loaded upon her at Siboney on the night of July 18, and the property for which I was responsible was turned over to the care of Second Lieut. James R. Steele, United States Volunteer Signal Corps.

It is with pleasure and pride that I refer to the conduct of the small detachment under my command in the field. Second Lieut. James R. Steele performed his duty in the same quiet, thorough, and faithful manner which had marked his entire previous career in the Signal Corps. Second Lieut. Walter S. Volkmar proved himself to be an energetic and courageous young officer. The entire command bore itself well, not only while under fire, but also during the days of hard work and privations which followed. To Sergeant Kennedy, Signal Corps, United States Army, praise is due for display of courage and uniform cheerfulness, which did not fail to have its effect upon the entire command.

On July 19 I sailed upon the steamer *Adria* for Tampa, in obedience to the provisions of paragraph 1, Special Orders, No. 40, dated Headquarters Fifth Army Corps, July 17, 1898, which directed me to proceed to Tampa, Fla., and report for orders to the Adjutant-General of the Army. Tampa was reached on July 27, where it was found that under the able direction of First Lieut. L. B. Wildman, United States Volunteer Signal Corps, the apparatus pertaining to the gas plant for the generation and compression of hydrogen had been instituted. A balloon company was also found there under his command, together with two balloons and all the necessary appliances for the equipment of a balloon train. On July 29 I was seized with fever and was taken to the hospital at Tampa, where I remained until August 5. On that date I left for Jacksonville, Fla., in compliance with the provisions of S. O. 168, W. D., A. G. O., dated July 19, 1898, or rather upon telegraphic notice that such an order had been issued. After my departure Lieutenant Wildman reports that the balloon section which still remained at Tampa was made ready for duty at Porto Rico in obedience to orders received by him, but that owing to the cessation of hostilities it has remained at Tampa, where ascensions for purposes of instruction were made on one day.

The difficulties met with in securing the rapid manufacture of apparatus needed have already been referred to. No less difficulty was found in securing the services of experts in the varnishing and care of balloons. While in New York innumerable applications for enlistment were received from professional aeronauts, but it was found to be wholly impossible to obtain the services of men of the class desired. The American aeronaut, making his ascensions as he does for purposes of exhibition only, desires to land in the shortest possible time. It is therefore a matter of little importance to him whether his envelope is made highly impermeable to the gas contained in it or not, and the result is that he knows little or nothing about the proper processes to be employed in making and keeping the envelope highly impermeable. It is understood that the services of two French experts were offered after I left New York, but only at the most exorbitant salaries. In spite of the difficulties met with, however, it can be said that within five weeks after the declaration of war the Signal

Corps was able to put a fully equipped balloon train in the field, and that by the time the companies of the Volunteer Signal Corps had been organized and were ready for service another train was practically completed. At the time of the cessation of hostilities, one set of equipment was at Santiago de Cuba, with all the necessary apparatus and material for making balloon ascensions, although work could not have been done with it as rapidly as would have been the case had a fresh supply of tubes containing compressed gas been available. Another balloon section was at Tampa, likewise fully equipped.

As regards the conclusion to be drawn from the work of the balloon section in the campaign of Santiago, in its bearing as to the value of the use of the balloon in warfare, a few remarks may be useful. As has been stated above, the use of the balloon in this campaign was very limited. Had it been brought ashore and used daily from the time of landing until the day of the battle upon July 1, it is believed a large amount of exceedingly valuable information would have been obtained. As it was, the few ascents made on the afternoon of June 30 were not rich in results, although some additions to the map of the country in our front were made possible by them. On July 1 at least two items of information of value were obtained by the use of the balloon. These were as follows: First, the fact that the intrenchments at or near the hill of San Juan were strongly held by the enemy. The obtaining of this information resulted in the opening of fire by the battery at the hill of El Poso earlier than would have otherwise been the case. Second, the official report of Brigadier-General Kent, commanding the First Division, Fifth Army Corps, as published in the press, states:

"The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thickets on our flanks, but from sharpshooters thickly posted in trees in our rear, and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment, of Hawkins's Brigade, came up. I turned them into the by-path indicated by Lieutenant-Colonel Derby leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade."

The country in which the army was operating was covered with brush and trees and, moreover, was hilly. Such a country is the one least likely to afford to the balloon a good opportunity of proving its usefulness. Movements and positions which upon a flat, open country could have been easily distinguished from the basket of a balloon, and in no other way, were hidden or only discerned with the greatest difficulty.

Experiments made abroad in photography from balloons, using a telephoto lens, have shown that in this way objects that could not be seen even with strong glasses can be located. It is believed that the use of a telephoto lens is almost essential if the best results are to be obtained from the observations. Negatives thus made could be rapidly developed and the pictures greatly enlarged by being thrown upon a screen by the aid of a magic lantern, thus enabling the making of a very complete map of sections of country even when occupied by the enemy.

The balloon used in the Santiago campaign was one of about 15,000 cubic feet capacity. This raised the two observers, the necessary instruments, and the captive cord, but not enough ballast could be carried to give easy control of the balloon in case it had broken away; furthermore, even in a slight wind it was found that the lifting power of the balloon was sensibly lowered. It is therefore believed that balloons employed for military reconnaissance should be of at least 18,000 cubic feet capacity.

The use of gas compressed in steel cylinders for the inflation of the balloon seems to be the best method until new processes of generation of hydrogen shall have been discovered, thus enabling portable generators of light weight to be utilized. The present portable generator to be of sufficient capacity is almost too large and too heavy to be moved over rough roads, while the weight of the material for the generation of the gas is excessive. It would therefore seem preferable, wherever possible, to place the generator at the base of operations and to keep the balloon supplied with gas by the shipment to the front of tubes.

The carriage of large quantities of sulphuric acid is difficult when carried in carboys, as was the case during the Santiago campaign. It was found that the stoppers often were knocked out or the necks of the carboys broken while being transported. On the other hand, the carriage of acid in lead-lined iron cylinders, while much more convenient, offers the objection that even the slightest hole in the lead lining will lead to leakage of the acid and possibly a serious accident.

It is also believed that it would be better in the case of field operations, where expense is a matter of minor importance, to substitute ingots of zinc for the iron

turnings ordinarily used. By doing this a greater rapidity of generation would be secured and less transportation would be required.

Taken as a whole, the present apparatus for balloon work is cumbersome, and can be transported over bad roads only with great difficulty. There is a wide field for improvement, and it is to be hoped that in the coming years sufficient appropriations may be secured to enable a thorough series of experiments to be made looking toward the finding of new methods of generation and the lightening of the apparatus employed and the weight of material used.

Very respectfully, your obedient servant,

J. E. MAXFIELD,
Lieutenant-Colonel, United States Volunteer Signal Corps.

APPENDIX 6.

REPORT OF SECOND LIEUT. GRANT SQUIRES, UNITED STATES VOLUNTEER SIGNAL CORPS, ON TELEGRAPHIC CENSORSHIP.

NEW YORK CITY, *October 25, 1898.*

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: In compliance with your instructions, I have the honor to respectfully submit the following report as military censor at this station during the recent hostilities between this country and Spain:

On April 25, 1898, by order of the President, the cable-telegraph systems, seven in number, having their termini in this city, were constructively taken possession of by yourself, as Chief Signal Officer, charged by law with the control of all telegraph and cable lines within the United States in time of war, and you designated Lieut. Col. Joseph E. Maxfield as military censor at this station, to represent you in the work of performing such military occupation of the telegraphic cable systems as the exigencies of the war then just begun should from time to time make manifestly needful.

Lieutenant-Colonel Maxfield went into actual possession of the office of the United States and Haiti Cable Company at No. 17 William street, this city, as it was recognized that over the lines of this company the greater part of information between the United States and the points most likely to be the scene of hostilities would be transmitted. This office was the actual terminus of the 1,500-mile cable starting from this city and extending to Cape Haitien, on the island of Haiti, at which latter point the line diverged, in connection with the French company's cable system, both westward, to points in Cuba, and eastward along the Island of Porto Rico, and thence southward to the Island of Martinique.

The military occupation of the telegraphic-cable systems at this point on April 29 was continued under Lieut. Col. George O. Squier, succeeding Lieutenant-Colonel Maxfield as military censor on May 15, and later, on June 11, by the undersigned, who continued to occupy the position until the censorship over telegraphic business was raised on August 18, 1898, five days after the signing of the peace protocol between this country and Spain.

The first weeks of the censorship were chiefly employed in preventing information regarding projected movements of bodies of troops, naval vessels, and transports from reaching the press, and to that end it became necessary to charge the responsibility for the observance of this regulation ordered by the Chief Signal Officer upon at least two sworn assistants in each of the cable companies' transmitting offices who were citizens of the United States, and who made oath to faithfully observe the orders of the military censor at this station in obedience to the written engagements of the presidents of the various telegraph cable companies made to the Chief Signal Officer when he assumed possession constructively of their system on April 29. Competent men were found to fill all these positions, and during the one hundred and twelve days during which the censorship was enforced there was not an hour during the twenty-four on any day when military censor was not in immediate telegraphic and telephonic communication with the various cable offices when not actually present at them to supervise the business passing over their lines.

It was avowedly the desire of both the President and the Chief Signal Officer that the military censorship at this point should be exercised throughout the war with the least possible inconvenience to all legitimate commercial business, including press business and when the subject-matter of the messages themselves did not conflict with the known requirements insisted on by the Government, no delay or con-

sorship was allowed to interfere with the free and prompt conduct of business as transacted before the Government took control.

It was part of the duty of the undersigned as military censor to expedite the large volume of Government business which went almost exclusively between Washington and Cuban and Porto Rican points over the lines of the United States and Haiti Cable Company. All Government business had an absolute preference over all other matter awaiting transmission in either direction over the line of this cable, and as between the various governmental matter the business of the Navy Department was given the preference until our forces were landed on the Island of Cuba, whereupon the preference was given to the War Department, next the Navy Department, then the State and Post-Office departments in their order, and careful regard being had on all special occasions by the undersigned to give the preference to any Government messages plainly calling for prompt transmission, regardless of the department whence it emanated. Instructions as to the same requirements were given by the undersigned to the officials of the French cable system, whose lines were used from Cape Haitien westward to Guantanamo and Caimanera, and later on the reestablishment of the line to Santiago de Cuba, and to their faithful observance thereto not a little of the promptness which was afterwards obtained in the transmission of Government business in large volume must be credited.

On special occasions, and on the special request of the officers of the Executive and War and Navy departments, including the commanding officers of armies and fleets, most rapid service was had in the transmission of messages between Washington and the front.

Twenty minutes was the average time for the transmission of important messages between the War Department and headquarters in the field before Santiago, and on one occasion, to make some specific illustrations of the advantage gained by military occupation of cable offices in time of actual warfare, another instance may be given. Early in August, after the occupation of Santiago by our military forces, the censor received the request at the Haiti cable office in New York that he furnish to the admiral commanding the American naval forces at Santiago with true Washington time for the purpose of correcting the chronometers on the flagship, and that an officer from that vessel was then at the Santiago cable office awaiting the desired information. It lacked about fifteen minutes of the noon hour when this request was received. The censor made known the wishes of the admiral to the officer in charge of the Naval Observatory at Washington by telegraph, and the line between New York and Washington running into the Haiti cable office was cleared of business. The signal of one click of the key was agreed upon as notification from Washington of the moment of noon. The operators at the Cape Haitien end of the cable were ordered to stop transmitting or receiving over any of the lines terminating at that point and to keep the line clear. The Santiago office was notified of the arrangement, and promptly at midday the agreed-upon signal was flashed from the Naval Observatory at Washington into the Haiti cable office; the operator at the recording instrument of the cable, not 10 feet away, sent the signal instantly to Cape Haitien; the operator there flashed it to Santiago, and in a period of time which could not have exceeded two seconds the officer from the admiral's flagship was made acquainted with Washington time, and a new and unique record made for the rapid transmission of information was obtained.

Again referring to the more specific work of censorship at this station, the undersigned reports that there was a wide misinterpretation put upon the performance of the duties of the Government in connection with the military occupation of cable-telegraph lines. It was deemed, and the press largely are responsible for this widespread impression, that the censorship by the Government was directed against the press to the exclusion of all other class of cable business. As a matter of fact it was not directed against the press at all except incidentally. The censorship was the control over all classes of cable business—private, press, and commercial—made necessary by the exigencies of war. At times it fell with some severity upon the press, but at no time with anything like the degree of inconvenience that it caused the commercial interests, that have to employ the cable in the transaction of business. It became necessary in the early stage of the hostilities to promulgate an order that no code or cipher messages were to be transmitted other than those to and from Governmental authorities at Washington and the legal diplomatic and consular representatives of neutral foreign governments. To the latter at all times the privilege of communicating in code and cipher was extended freely.

A simple record of the source and destination of these messages in both directions was kept for the information of the authorities at Washington, but at no time did the censorship operate as a prohibition on any class of cable business except those in Spanish to and from Spain and to and from the islands of Cuba, Haiti, Porto Rico, Jamaica, and St. Thomas, in which, of course, were included the restrictions as to cipher and code messages above noted.

As promptly as it was deemed safe by the Chief Signal Officer after the conclusion

of the peace protocol all restrictions were raised, even those relating to Spanish messages, and exceptions were made even at an earlier date, when the peace negotiations had actually commenced, to enable the Governor-General of Cuba to communicate freely through the cable leaving New York with his home Government regarding the disposition he was to exhibit to meet the changed conditions then existing in both the eastern and western half of the Island of Cuba.

After the capture and transfer to this country of large numbers of Spanish officers and men it was the privilege and pleasure of this Government to direct the censor at this station to pass without question numerous messages sent by and addressed to those of the enemy who had fallen into our hands and were confined at Portsmouth, Annapolis, and Norfolk, and at military prisons in Georgia, and it was noticeable that the phraseology of those messages indicated the surprise and pleasure which both the senders and recipients felt at the kind treatment they were receiving at the hands of their captors, the safety and good fare they enjoyed, and their lack of nothing to make them comfortable.

This relaxation of the censorship conducted not a little to the diminishing of bitter feeling between the large numbers of people in Spain whose relatives were confined to this country, and with whom they were enabled readily to communicate by their captors. It was the policy of the Government to extend every possible facility in matters of telegraphic communication to their captive enemy, while exercising the strictest censorship over all matters emanating from our enemy still in arms.

Allusion has already been made to the censorship as it incidentally applied to press business. All orders which the censor was obliged to announce were addressed to the officers of the cable companies, and hence arose some confusion at various stages of the war as to the regulations in force. These instructions were private and were not always intended for the information of the press or public. It was manifestly improper if a contraband message was stopped, delayed, or censored, to notify the sender or recipient of the standing or changed condition of his message, and as time is always the most important element in the transmission of press messages, any delay that occurred to that class of business at this city was sure to cause friction between the cable companies and their press patron particularly affected. Cable companies were bound to obey the Government in the person of the censor, and by like order were not privileged to give any information as to failure or delay in service of the censored condition in which messages were sometimes delivered.

But the utmost care was exercised at all times to guard against abuses of this authority, undoubtedly possessed by the Government, over all classes of business, and the censor can recall at this moment not a single instance from among the patrons of the cable companies, whether they were commercial houses, press association managers, foreign newspaper correspondents, or private individuals, where those concerned were reputable, in good standing, and loyal Americans, of any complaint being made of the censorship exercised during the late war.

This report can not be closed without an expression on the part of the censor of his sense of obligation and appreciation of the cordial cooperation extended to him at all times by the officers of the various cable companies, especially the managers and operators at the office of the Haiti Cable Company, with whom he was brought hourly for many weeks in peculiarly intimate relations in moments most trying to all concerned. He bears hearty testimony here to their unvarying loyalty at all times, giving proof of a rarely unselfish devotion to interest only their own by reason of their citizenship, and alone making it possible, as he never otherwise could have done, for the censor to carry out his directions with the measure of success or of satisfaction he may have given to the Government to whom he was responsible.

Respectfully submitted.

GRANT SQUIRES,
Second Lieutenant, United States Volunteer Signal Corps, Military Censor.

APPENDIX 7.

REPORT ON THE PERMANENT MILITARY TELEGRAPH LINES OF THE GOVERNMENT.

The United States military telegraph lines, whose operation devolve by law on the Chief Signal Officer of the Army, aggregate in length about 900 miles, the larger portion of which are in the Department of the Colorado, where upward of 368 miles are maintained and operated.

The principal divisions are the Holbrook-Willcox section, in Arizona, 274 miles, connecting the military posts of Fort Apache, Fort Grant, and the San Carlos Indian Agency with the commercial system of the country. The Bismarck-Fort Yates section, in North Dakota, 65 miles in length, and the Fort Brown-Fort McIntosh section,

in Texas, 200 miles in length. On this latter line 7 stations are maintained. At the beginning of the fiscal year these divisions were in charge of the department signal officers wherein situated, viz: Capt. William A. Glassford, Department of the Colorado; Capt. Richard E. Thompson, Department of Dakota, and First Lieut. Samuel Reber, Department of the Gulf. On the commencement of hostilities with Spain it was imperatively necessary to relieve these officers from their important duties in connection with the management of these lines, and the charge thereof was vested in Second Lieut. E. L. King, Eighth United States Cavalry, acting signal officer, Department of the Colorado, with headquarters at Denver, Colo.

In addition to the sections mentioned, the Signal Corps maintains and operates a large number of short lines connecting isolated military posts with the commercial system, among which may be mentioned Fort Bayard, N. Mex., which is connected with Silver City by a line 10 miles in length; Fort Niobrara, Nebr., connected with Valentine, Nebr.; Fort Washakie, Wyo., connected with Lander, Wyo., 16 miles distant; Fort Sill, Okla., connected with Rush Springs, 28 miles; Fort Reno, Okla., with El Reno, 5 miles; Fort Bliss, Tex., with El Paso, 6 miles; Fort Huachuca with the railroad station, 7 miles; Fort Wingate, N. Mex., with the railroad station, 3 miles. At many military posts, as well as department headquarters, the commercial companies of the country have connected their lines therewith by a loop, but as the business does not warrant the companies' furnishing operators, these offices are operated by the enlisted men of the Signal Corps in connection with their other military duties.

While the permanent military lines are maintained primarily for military purposes, yet they also subserve commercial interests by affording speedy communication with business centers, and the income from such sources assumes respectable proportions, averaging about \$2,000 per annum, the amounts received from such sources being covered into the United States Treasury monthly. This, of course, does not represent the amount of business transacted, as probably 90 per cent of the business of these lines is transmitted free, originating in military sources, or some of the departments of the General Government or the several States. It has been estimated that the regular tariff charge of messages transmitted free over these lines would, if paid for, involve the disbursement of about \$15,000 annually by the Government.

Upon the declaration of war the Chief Signal Officer of the Army was obliged to mobilize his extremely inadequate enlisted force at the several military camps in the East preparatory to active campaigning; hence it became necessary to relieve the sergeants on duty at all the military telegraph offices and so far as possible supply their places by civilians, a very expensive as well as unsatisfactory procedure from a military standpoint.

Notwithstanding the fact that the Chief Signal Officer had repeatedly called the attention of Congress to the great necessity of electrical intercommunication between the various fortifications in the great harbors of the country, particularly New York, Boston, and San Francisco, the beginning of the war found these forts cut off and isolated from the War Department, except in some cases by long and circuitous routes, involving delays in the transmission of important dispatches, fatal in times of emergency. The President and the Secretary of War, understanding the importance of these matters, upon the representation of the Chief Signal Officer made an allotment from the national defense fund, and work was immediately commenced on this long-neglected work. Cables had to be manufactured, and other details that were almost discouraging, where time is an important element, had to be overcome, and it was only by the indomitable energy and perseverance of the commissioned and enlisted force of the Corps that the work was pushed to a successful accomplishment.

In New York Harbor Fort Hancock, N. J., was connected by a cable to Fort Wadsworth, N. Y., 12½ miles in length. The cable is a three-conductor, two conductors being utilized for telephonic and one for telegraphic intercommunication between these two posts. Between the terminal of the cable and Navesink light, New Jersey, 25 miles of overhead telephone wires for the purpose of intercommunication and range-finding systems were erected. From Fort Wadsworth a six-conductor cable was laid, 1½ miles long, to Fort Hamilton, N. Y., two of the conductors being for intercommunication between Forts Hancock, Wadsworth, and Hamilton, and the remaining four conductors for range-finding system.

The following briefly sets forth the electrical installation at fortifications on the Atlantic seaboard which the Signal Corps of the Army was compelled to install within a few weeks after the beginning of hostilities.

Fort Warren, Mass.—Cable to Long Island Head, Mass., 9,500 feet; from this point a short land line connects with the Boston municipal line, thence, via Deer Island and Winthrop Head, connecting with the New England Telephone Company's wires.

Fort Greble, R. I.—A cable 3,000 feet long, three-conductor, connecting at Fox Hill

with the lines of the Providence Telephone Company, giving service to Newport and thence to Fort Adams, R. I.

Block Island to Narragansett Pier, R. I.—Nineteen miles of two-conductor cable.

Fort Schuyler to Fort Totten, N. Y.—One and one-fourth miles of six-conductor cable for intercommunication and range finding between these two posts.

Fort Delaware, Del.—Connected with Battery Point, Del., and Fort Mott, N. J., by a three-conductor cable, 3 miles in length. In addition, 7 miles of land line constructed from Fort Mott to Salem, N. J., giving the post direct telegraphic communication.

Fort Washington, Md., Sheridan Point, Va., line.—It being essential to connect the fortifications on the Potomac River below Washington city, 1 mile of three-conductor cable was laid between Fort Washington and Sheridan Point. From Sheridan Point a land line was constructed connecting the post with Fort Meyer, Va., from whence there is a commercial line direct to the War Department. An alternate line was also constructed from Fort Washington, Md., to the naval Indian Head line, and on the poles of the Navy Department line to Anacostia, D. C.

Baltimore Harbor.—An overhead telephone line was constructed from Fort McHenry to North Point, about 3 miles, to connect with the lines of the Chesapeake and Potomac Telephone Company in the Sparrow Point road; from Hawkins Point to Fort McHenry by an overhead wire to Shedd's Point; from Hawkins Point to Quarantine, some 2 miles, both poles and wire the property of the Signal Corps; from Quarantine to Shedd's Point, about $1\frac{1}{4}$ miles—wire belongs to the Signal Corps, which is strung on the poles of the Chesapeake and Potomac Telephone Company; from Shedd's Point a three-pair cable crosses Curtis Creek to Floods Point, and from there to Fort McHenry, over the wire of the Telephone Company; at Hawkins Point a telephone system about $\frac{1}{4}$ miles long on the base line of the 8-inch B. L. R. Battery at that point.

Fort Adams, R. I.—A single wire was stretched to connect with the commercial line at Newport, R. I.

Fort Caswell, N. C.—A land line connects the fortification with Southport, a distance of almost 2 miles.

Fort Monroe, Va.—At this post 850 yards of overhead line was constructed for the signal system and 600 yards of line for post intercommunication.

Fort Stocum, N. Y.—Connected to Neptune Dock, New Rochelle, N. Y., by 4,100 feet three-conductor cable, one conductor being used for telegraph and two for telephone service. A short land line then connects the cable with the Western Union wire.

Fort Trumble, Conn.—About 14 miles of one-conductor cable was furnished by the Engineer Corps and laid by the Signal Corps from Goshen Point, Conn., to Gull Island; thence to Plum Island and across Plum Island by one-half mile of land line, connecting with the cable running to Gardiners Point. Connection is to be made at Goshen Point with the line of the commercial company, which work is not yet completed and will require 1,483 yards of twelve-conductor, twisted pair, insulated wire, crossing river from New London to Groton Point, for use of range-finding system.

Fort Preble.—Connected with Portland by a telephone line, which line is intersected by the post line.

Governors Island, N. Y.—About three-fourths of a mile of fifteen-conductor cable was laid between this island and the Barge Office, in connection with the Treasury Department. Three of these conductors are for the use of the Signal Corps.

In the vicinity of San Francisco land lines were constructed from Point Bonito to Fort Baker and Sausalito; also from the Presidio wharf to Point Lobos. A cable for connecting the important forts of the harbor is yet to be provided.

Considerable work in connection with electrical intercommunication was also done at the various fortifications in the Department of the Gulf.

The following table shows the location and length of the United States military telegraph lines in the several military departments:

Sections and stations.	Length.	Sections and stations.	Length.
<i>Department of the Colorado.</i>		<i>Department of the Colorado—Continued.</i>	
<i>Holbrook-Willcox section:</i>	<i>Miles.</i>	<i>Cedar Springs—Mammoth branch:</i>	<i>Miles.</i>
Holbrook, Ariz.....	0	Cedar Springs, Ariz.....	0
Snowflake, Ariz.....	32	Hellner's Ranch, Ariz.....	12
Cooley's Ranch, Ariz.....	68	Mammoth, Ariz.....	42
Fort Apache, Ariz.....	92	Biabec—San Bernardino branch:	
San Carlos, Ariz.....	163	Biabec, Ariz.....	0
Geronimo, Ariz.....	190	United States custom-house station.	0
Cedar Springs, Ariz.....	228	San Bernardino, Ariz.....	42
Fort Grant, Ariz.....	248	Fort Du Cheane—Price section:	
Willcox, Ariz.....	274	Fort Du Cheane, Utah.....	0

Sections and stations.	Length.	Sections and stations.	Length.
<i>Department of the Colorado—Continued.</i>		<i>Department of the Missouri.</i>	
Fort Du Cheane—Price section—Cont'd.	<i>Miles.</i>	Fort Reno—El Reno line:	<i>Miles.</i>
Du Cheane Bridge, Utah.....	12	Fort Reno, Okla.....	0
The Wells, Utah.....	28	El Reno, Okla.....	5
Lee's Ranch, Utah.....	50	Fort Sill—Rush Springs line:	
Price, Utah.....	87	Fort Sill, Okla.....	0
Fort Bayard—Silver City line:		Rush Springs, Okla.....	28
Silver City, N. Mex.....	0	Fort Niobrara—Valentine line:	
Fort Bayard, N. Mex.....	8	Valentine, Nebr.....	0
Hall's Station, N. Mex.....	13	Fort Niobrara, Nebr.....	5
Fort Huachuca line:		<i>Department of the Gulf.</i>	
Fort Huachuca, Ariz.....	0	Fort Brown—McIntosh line:	
Huachuca Siding, Ariz.....	7	Fort Brown, Tex.....	0
Fort Washakie—Lander line:		Santa Maria, Tex.....	24
Lander, Wyo.....	0	Edinburg, Tex.....	51
Fort Washakie, Wyo.....	16	Fort Ringgold, Tex.....	100
Fort Wingate line:		Roma, Tex.....	
Fort Wingate, N. Mex.....	0	Carrizo, Tex.....	
Wingate railroad station.....	3	Fort McIntosh, Tex. (Laredo).....	200
<i>Department of Dakota.</i>		Fort Bliss—El Paso line:	
Fort Yates—Bismarck section:		El Paso, Tex.....	0
Bismarck, N. Dak.....	0	Fort Bliss, Tex.....	6
Cannon Ball, N. Dak.....	41	Fort Clark—Spofford Junction line:	
Fort Yates, N. Dak.....	65	Fort Clark, Tex.....	0
		Spofford Junction.....	10

APPENDIX 8.

REPORTS ON ELECTRICAL INSTALLATION AT CAMPS ALGER, CURA LIERE AND SAVANNAH, GEORGE H. THOMAS, HAMILTON, POLAND, MEADE, AND WIKOFF.

WAR DEPARTMENT, SIGNAL OFFICE,
Camp George Gordon Meade, Pa., October 25, 1898.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

SIR: In reply to your telegram of yesterday, which only reached me this morning, I have the honor to submit the report called for, as follows:

The chief signal officers of the Second Army Corps, from the time of its organization to the present, have been as follows: Lieut. Col. R. P. Strong, from the organization of the corps until July 30; Capt. Carl F. Hartmann, from July 31 to August 19; Lieut. Col. Edward B. Ives, from August 20 up to the present date.

Until August 16 the Second Army Corps was stationed at Camp Alger, Va. On the following day it was transferred to Camp Meade, Pa.

When I reported for duty its headquarters was at Camp Meade, and the several regiments were arriving daily. I have no data in this office from which a map of Camp Alger can be made for you, showing lines at Camp Alger, but am informed by Capt. C. F. Hartmann that maps, data, and information regarding the work of the Signal Corps during the time that the Second Corps was at that point are on file in the office of the Chief Signal Officer.

I inclose herewith a map of Camp Meade, showing the location of lines and telephone offices as follows:

Telephones: 1, telephone exchange; 2, office of corps commander; 3, corps headquarters; 4, corps headquarters; 5, provost marshal; 6, chief surgeon; 7, depot quartermaster; 8, depot commissary; 9, depot quartermaster; 10, long-distance telephone; 11, bakery; 12, headquarters Second Division; 13, Second Division commissary; 14, Second Division, Second Brigade; 15, Second Division, Third Brigade; 16, First Division, Second Brigade; 17, First Division hospital; 18, headquarters First Division; 19, First Division, Third Brigade; 20, First Division, First Brigade; 21, First Division corral; 22, Second Division hospital; 23, Red Cross Hospital; 24, Second Division, First Brigade; 25, Engineer Corps.

The lines are of standard Signal Corps construction No. 14 galvanized-iron wire on lances. There are a total of 30 miles standing; altogether 33 miles have been constructed, and 3 miles have been taken down.

The telegraph offices are as follows: At corps headquarters, at headquarters Two hundred and third New York Volunteer Infantry, at Commercial Telegraph center.

All of the wires of these offices were installed by the Signal Corps company, part

of the material being furnished by the Signal Corps and part by the several telegraph companies. The operators at the telegraph offices at corps headquarters and the Two hundred and third New York are Signal Corps men, as are also the messengers for delivering the messages. These offices are kept open day and night. Both commercial and military business is done, the money accounts being kept by the sergeant in charge of these offices, an arrangement satisfactory to the companies and the military. At the point marked "Z" on the map the Western Union, Postal, and Bell companies have an office for commercial business. Over these the Signal Corps has no jurisdiction other than what military necessity may dictate. At a point about 100 yards north of corps headquarters, on a little stream, a small water power has been installed which drives an electric generator. The energy furnished is one-eighth of a horsepower and supplies electricity for ringing the telephone call bells. This arrangement saves much time in making calls and exchange connections. The work was installed by men from both companies of the Signal Corps, under the immediate supervision of First-Class Sergeant Lewis, of the Sixth Company, who built the water wheel. This installment is unique, in being the smallest power house in the world. It is absolutely complete, with dam, race, sluices, gates, etc.

An electric-light system has been installed at headquarters by the Signal Corps, which furnished the material and labor. The power is supplied by the Middletown Electric Light Company, the quartermaster's department paying the bill. The special daily duty performed by the two companies is as follows: 11 mounted orderlies (bicycle orderlies have been discontinued temporarily), 5 telegraph operators, 1 telegraph manager or chief operator, 3 telephone operators, 3 telephone exchange operators, 2 dismounted orderlies, 1 chief lineman, 1 electric-light electrician, 1 foreman of the repair squad, 1 stenographer in the chief signal officer's office.

The routine duties of the Signal Corps consist in mounted drills, care of horses and transportation, instruction in visual signaling, dismounted drills, and camp routine generally, also the repair and maintenance of electric lines and in photographic work. Special experiments have been made with acetylene gas flash lanterns, which have proven very successful for night work. When the commercial use of calcium carbide becomes more general, so that reliance may always be put upon getting it, then these lanterns will naturally replace those using oil. The torch is never used at all, and I would recommend its discontinuance. It is cumbersome, uses an enormous quantity of oil, and messages can be transmitted by it only very slowly. No experiments have yet been made with a view of determining whether acetylene can be used in the daytime to supplement the heliograph in cloudy weather, but these experiments are in contemplation.

Owing to the shortage of officers and the amount of work falling on those present for duty, there has been as yet no chance for establishing an officers' school, but such a school is contemplated to be started as soon as possible, the curriculum to consist of lectures and essays on professional subjects, readings and recitations from Myer's Manual, instruction in Spanish, minor electric engineering, and the elements of hygiene.

The Signal Corps force here consists of the Eleventh Company, Captain Hartmann, and the Sixth Company, Captain Hepburn. These companies are below their quota, the Eleventh Company lacking 2 officers and 19 men, and the Sixth Company lacking 3 officers and 27 men. Most of these are absent sick.

It would be very advisable if a third company could be assigned to this corps, so as to give an opportunity for technical instructions to officers and men. The Eleventh Company has a noncommissioned officer's school; the Sixth has not. The equipments of the company are in general as follows: To the two companies combined there are 42 horses and 28 mules, 1 mountain wagon, 3 battery wagons, 1 wire-reel wagon, and 5 army wagons. Animals and wagons are in fair condition. The companies are well equipped with the usual complement of camp and garrison equipage, all in good order. The signal property, both visual and electric, is ample and in good condition; there are no lance trucks and I would advise that we be supplied with three of them.

As far as I have been able to observe, the esprit de corps of our arm of the service is exceedingly high.

The inclosed report covers the work done at Camp Alger previous to my joining the Second Corps.

Very respectfully,

EDWARD B. IVES,
Lieutenant-Colonel, Chief Signal Officer.

HEADQUARTERS SECOND ARMY CORPS,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Camp George Gordon Meade, Pa., August 19, 1898.

Gen. A. W. GREELY,
Chief Signal Officer, United States Army, Washington, D. C.

SIR: I have the honor to report to you that, after conferring with me, the major-general commanding the Second Army Corps ordered me as acting chief signal officer, with one company Signal Corps, to proceed with his headquarters to Middletown, Pa., on August 16, 1898.

The Sixth Company, Captain Conner commanding, received orders to move at reveille on that day. They proceeded to break camp at once, and by noon had everything packed and loaded on wagons. The Signal Corps horses, property, and equipment were expeditiously loaded on the cars at Dunn Loring and arrived at Middletown, Pa., about 4 o'clock a. m. on the 17th instant, about one hour after the train bearing the major-general commanding.

I was invited by the chief engineer and quartermaster to assist in selecting a site for our camp. I do not hesitate to say that the situation and location is equal to the site selected for the headquarters of this army corps, and probably superior to that of any command therein. The Signal Corps company was the first detachment to get into camp and under shelter, the entire company being under cover before 6 o'clock, the camp site having only been finally determined on at 3 o'clock. The headquarters of this corps did not get into camp until the 18th instant, being in the meantime in parlor cars on a railroad siding about 1 mile from the present location. The transmission of all orders and information was performed by couriers furnished from my command on horses and bicycles. On the 18th instant telephone communication was established between the signal camp and corps headquarters and also with the quartermaster and commissary depots near the railroad, about 1 mile distant, these being the only points ready at the time. On the 19th instant, at 9.30 and 10.30 a. m., telegraph connection was completed with the Postal Telegraph and Western Union Telegraph companies, respectively. Since then the office of the chief surgeon and the Second Division hospital have been connected with our telephone system.

In the installation of our telephone system and in making connections with the telegraph lines Lieutenants Coe and Bawsell rendered efficient assistance. In order to get telegraphic communications immediately it was necessary that I should use my own material, the telegraph companies not having a supply at hand. I have reason to believe that the work of the Signal Corps is entirely satisfactory to the major-general commanding.

The collection and distribution of mail, courier service, mounted-orderly service (horses and bicycles), and telegraph-messenger services are all being performed by the Signal Corps.

I beg to say in conclusion that there is little room for improvement in the services rendered by the Signal Corps generally, and none at all in the telegraph and telephone system.

I have the honor to remain, your obedient servant,

CARL F. HARTMANN,
Captain, Signal Corps, United States Volunteers.

OFFICE OF CHIEF SIGNAL OFFICER,
HEADQUARTERS SECOND ARMY CORPS,
Camp George Gordon Meade, Pa., September 23, 1898.

Gen. A. W. GREELY,
Chief Signal Officer, United States Army, Washington, D. C.

SIR: I have the honor to submit to you the following narrative in order to complete my report of work done at this camp and also at Camp Russell A. Alger, Va., during the month of August.

From August 16 to August 30 First Lieutenant Chandler was in command of the Eleventh Company, which was during this time and up to September 2 encamped near Dunn Loring, Va., at the headquarters of the First Division, Second Army Corps, to which this company was attached. On August 17, the day after General Graham left Camp Alger, the Western Union Telegraph and Chesapeake and Ohio lines were continued to the headquarters of the First Division at Dunn Loring, Va., about 1½ miles distant. The telephone exchange and all wires were removed from the old exchange building and established in the house used as division headquarters, one of the rooms on the second floor in this building being given up to the Signal

Corps as a telephone and telegraph station. This work was completed on that day. On the next morning the company moved camp to a point near First Division headquarters. A telephone order from Col. H. H. C. Dunwoody on that day directed that Fort Myer hospital be connected with the First Division camp by telephone. The men and material were immediately sent to Fort Myer hospital to connect it with the Camp Alger telephone line. By 4.30 p. m. the next day the line was completed and in operation. This work was in charge of Lieutenant Daggett. Owing to the fact that a considerable part of the route was through dense underbrush, which had to be cut out, and that two wires were necessary to reach the main line, it being a metallic circuit, the work was necessarily slow and tedious.

On August 20 the entire telephone system was changed. Instead of having a number of telephones in parallel on each line a separate line was run to each telephone, using the ten drops on the switch board. This was possible owing to the fact that the number of telephones in use had necessarily been decreased because of the move of the Second Division and part of the First Division to Camp Meade, Pa. All new lines had been run and men were stationed at all the telephones, so that precisely at 12 o'clock noon the telephones were cut in on the new system without interrupting the service one minute. This work was in charge of Lieutenant Darnell. A line was constructed that day from central station to the Signal Corps camp and another to the quartermaster's office. * * *

On August 30 the company made three most interesting tests of line construction. The first was a test of lance-line construction, one-half mile of which was constructed by a squad of six men in twenty-eight minutes; this time includes making the grounds and connecting the instruments (the Allen telegraph and telephone field kits). The second test was in taking up the same half mile of lance line, which was accomplished in eleven minutes and fifteen seconds. In putting up and taking down this line a quartermaster's mule wagon was used for carrying the portable and adjustable wire reel on the seat box and carrying the lances on the bottom of the wagon. The third test consisted of laying $1\frac{1}{4}$ miles of four-strand insulated coil wire from the wire-reel wagon. The work was accomplished by three men and a driver. The line was laid, the grounds made, and the Allen telegraph and telephone field kits connected, and the line was in operation in eleven minutes. Two men were on the wagon to guide the wire and make the connections, and the third man, mounted on a horse, came in the rear, moving the wire across the road to prevent it being run over. The location was across fields and over roads, a part of the latter being corduroy; these tests were made under the supervision of First Lieutenant Chandler. * * *

On September 2, having received orders to move to Camp Meade, I left Camp Alger and proceeded to this place with my company, except Lieutenant Darnell and six men. Most of the lines were taken up before we left, as only three regiments, division headquarters, and the First Division hospital remained at Camp Alger when we left. Before leaving most of the telephone lines and other connections had been taken down, leaving as little work as possible to be done by the detachment which remained behind under command of Lieutenant Darnell.

Although I intended that this report should only include the operations of my company up to September 1, I think it well to report here the final work done at Camp Alger and thus close that part of our history.

On September 7 Lieutenant Darnell received orders to be ready to move with his detachment of six men to Camp Meade by 6 p. m. on September 8. He thereupon removed all wires and instruments not previously taken out, reserving only the long-distance telephone and the telegraph until the last moment. He terminated the contract with Mr. H. E. Church for the long-distance telephone and delivered the instrument to him, receiving his receipt therefor, thus closing our relations with him. As the contract with him entitled the Signal Corps to the use of his telephone circuit for nearly three months longer, the telephone at Dunn Loring was left connected and a short spur was run to the First Division hospital, where it was connected with the Cabinet telephone belonging to Mr. Church, which he loaned to the hospital. This last line was constructed in a very temporary manner, as the surgeon in charge said it would only be in use for a few days. The telephone I speak of at Dunn Loring was connected with the long-distance telephone to Falls Church and Washington. Lieutenant Darnell and his detachment of six men arrived here in good health and reported for duty on the 8th instant, bringing with them the little material I had left behind at Dunn Loring for their use.

Very respectfully,

CARL F. HARTMANN,
Captain and Acting Chief Signal Officer.

HEADQUARTERS UNITED STATES VOLUNTEER SIGNAL CORPS,
FIFTEENTH COMPANY,
Montauk Point, Long Island, October 26, 1898.

CHIEF SIGNAL OFFICER,
War Department, Washington, D. C.

SIR: The following is an official report of the signal work at Camp Wikoff performed by the Fifteenth Company of the United States Volunteer Signal Corps.

Montauk Point, Long Island, having been selected as an official camp for the reception of the Fifth Army Corps upon its return from the campaign in Cuba, I was, on the 5th of August, 1898, detached from my company and ordered to report to the commanding officer at this place for special duty. I arrived at Montauk at noon, Saturday, August 6, and having reported to the commander, Major-General Young, I was immediately assigned to the duty of surveying and staking out camps, and also directed to take charge of the Government telegraph work.

At that time the facilities for handling telegraph business at this point were limited, the Western Union being the only telegraph company having an office here, their work being done by the railroad employees. These men failed to conceive the importance of dispatch in handling Government telegrams, and it became necessary for me personally to act as telegraph operator at this end of the line. I immediately notified the Western Union officials at New York that official telegrams would have to receive preference over all others, and that it was imperative that they at once make adequate arrangements for the proper handling of telegraph business here. These arrangements were promptly made, and Government business at all times during the existence of the camp received preference and telegrams were transmitted without any delay whatever.

Expert telegraphers having arrived from New York, I resumed the work of surveying and laying out the plan of the camp until the arrival of my company on the evening of August 9. We established our camp at a point conveniently near the commanding general's headquarters, and immediately located flag and heliograph stations, and began the work of putting the various parts of the camp in telephone and telegraph communication. By Thursday, the 11th, we had made connection by telephone between General Young's headquarters, the Signal Corps, general hospital, and the depot (the distance between the depot and General Young's headquarters being 3 miles).

It having become apparent at this time that the railroad station would soon be congested with business, it was decided that the Western Union and Long Distance Telephone companies should establish their offices at a point near the Signal Corps headquarters (see map attached); this was accordingly done, and the railroad office was instructed to handle nothing but railroad messages. By an arrangement with the Western Union and Long Distance Telephone companies a building 60 feet long and 12 feet wide was erected and utilized as a headquarters by these two companies and the Signal Corps.

On account of the difficulty and delay in communicating with our soldiers in Cuba, the number of telegrams sent and received by the soldiers became so numerous that it was impossible for the Western Union Company to properly handle the business; we therefore established telegraph stations throughout the camp—nine in all—and detailed operators and mounted orderlies at each of these stations. The locations of these offices were as follows: General Young's headquarters, General Shafter's headquarters, General Wheeler's headquarters, Signal Corps headquarters, detention camp, general hospital, General Ames's headquarters, General Sumner's headquarters, and the bureau of information.

Until the troops began to leave this camp the number of telegrams which we handled averaged 1,500 per day.

Having put up a telephone switchboard, we increased the telephone service as occasion demanded, and when fully completed we had 28 telephones in use; 6 circuits were erected, all metallic, and by an arrangement with the Long Distance Company, who ran a pair of wires from their switchboard to ours, we were enabled to make long-distance connections from any of our telephone stations. Our telephone system was unusually successful, and the number of connections made at the central office averaged 400 daily; every department of the army corps had telephone communication with the central office.

One of the most important features of our work was the sighting and reporting of transports as they came up along the Atlantic coast. A flag station was located on a piece of high ground back of our headquarters and a detail of men was kept there continually. By the use of telescope and field glasses the transports could be sighted from 12 to 15 miles away. As soon as the number and name of the transport could be deciphered they were sent immediately to the commanding general, and whenever possible communication was established with the transport by flag, though in most cases there were no flagmen on board the transports.

A detail of flagmen was sent out daily on the quarantine tug, and it became possible for the examining surgeon to send in a report from each transport as to the nature of the command on board, the condition of the troops, the number of sick, and whether or not any infectious diseases were on board; as a result, the officers in charge were given from two to three hours' time to prepare for the reception of the troops before they were actually disembarked.

On one occasion we learned at night by telephone that the transport *Prairie* had run aground near Amagansett, about 7 miles west of the camp, and we immediately sent at daybreak one of our sergeants on horseback to the scene of the accident. Upon his arrival there he at once sent to camp a report as to the condition of the vessel and the men, and also made arrangements for the moving of the troops to the railroad track, and notified the Long Island Railroad to stop a train to take the men in camp.

Shortly after the camp was established it became evident that no work could be done at night, and that it would be almost impossible to move from one point to another unless the camp was lighted. The commander, General Young, having approved of a plan which I submitted to him for the erection of an electric-light plant, I submitted the same to General Greely, the Chief Signal Officer of the Army, who authorized me to purchase and erect an electric-light plant having a 50-arc light capacity, and directed me to place the lights at advantageous points throughout the camp. In compliance with these instructions, we bought an 80-horsepower engine, a 5-ton horizontal boiler, an 80-foot smokestack, a 50-arc light generator, 50 arc lamps complete, having a 2,000 rated candle capacity, 8 miles of wire, and 225 standard poles. We began the erection of a power house, which was to be 44 feet long, 28 feet wide, and 30 feet high. We made foundations for machinery, set up the power house, and put up 20 lights in twelve days, and at the end of fifteen days all of the 50 lights were up and the plant was running at its full capacity.

Still another feature of our work was the making of maps. We made one of the camp as it was originally intended to be, and another of the camp as it actually was after the arrival of the troops from Cuba and the south. (See map attached.)

It having been decided that this place be abandoned as a camp, the troops were gradually withdrawn, and as the various headquarters were broken up we recovered our telephone and telegraph instruments and wire. We erected in all 22 miles of telephone lines, 8 miles of telegraph lines, and 8 miles of electric-light lines, all of which we have since recovered and invoiced to Lieutenant Clarke, Governors Island, and Captain Dodds, Atlanta, Ga., with the exception of about 2 miles of wire which is now in use for the purpose of giving the general hospital permanent communication with the depot and the commander of the camp.

Being advised that the electric-light plant was to remain here for the time being, we carefully stored in the power house all of the material used in the operation of the plant, and an inventory of same sent to the disbursing officer. Having been ordered to Huntsville, Ala., to report to the chief signal officer of the Fourth Army Corps, we left Camp Wikoff on October 27, 1898.

In conclusion I wish to state that the success of the signal work at Montauk was due entirely to the intelligence, skill, and energy of my officers and men. Every man in the company was untiring in his efforts, and all demonstrated their patriotism by doing everything in their power to make this camp both convenient and comfortable for those who had done such noble work in the campaign at Santiago.

Very respectfully,

AMBROSE HIGGINS,
Captain, United States Volunteer Signal Corps.

HEADQUARTERS FOURTH ARMY CORPS,
OFFICE OF CHIEF SIGNAL OFFICER,
Huntsville, Ala., October 27, 1898.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

SIR: I have the honor to submit herewith the following report of operations with the Fourth Army Corps at Tampa, Fla., and Huntsville, Ala., from August 4, 1898, until October 28, 1898.

Pursuant to paragraph 15, Special Order 179, War Department, August 1, 1898, I reported in person to Major-General Coppinger at Tampa, Fla., August 4, 1898, as chief signal officer.

The corps headquarters being under orders to proceed to Porto Rico, I at once made careful examination of the signal property stored at Tampa, with a view of obtaining a suitable equipment for service. There was found one balloon company well equipped, under Lieutenant Wildman, Volunteer Signal Corps, the odds and

ends left behind by other companies which had gone to Cuba and Porto Rico, and some other property received since their departure.

The facilities for transportation on the steamer selected for the headquarters being limited, and it being desirable that a signal party should be available for service the moment a landing at Porto Rico should be made, I organized a detachment of 1 officer and 10 men with a section of field train to accompany the corps commander, and proceeded to Port Tampa City August 10 to embark. The Tenth Company, which was being held in quarantine at Egmont Keys, and the balloon company (Seventeenth) were to follow on the next steamer.

During embarkation on the steamer *Santiago* on August 11 orders were received by the corps commander to disembark and send the steamer to Santiago. The Signal Corps was then marched back to Tampa.

On the same day, August 11, orders were received to move to Fernandina, Fla., and almost immediately after orders to move to Huntsville, Ala. Accompanied by 2 enlisted men, I proceeded to Huntsville, Ala., arriving there August 13, and going into camp August 15.

By use of material borrowed from the Bell Telephone Company, work was commenced August 15 (the previous two days having been given to selection of routes), and on August 19 telephone and telegraph communication was opened between corps headquarters and the Western Union Telegraph Company, Huntsville, Ala.

On August 17 part of the Tenth Company, Signal Corps, United States Volunteers, Capt. T. F. Clark, reported, having been released from quarantine at Egmont Keys, Fla. This company was without any signal equipment whatever. On the 19th instant 10 men of Seventeenth Company, under Lieutenant Shepherd, reported from Tampa, Fla., and also a detachment of the Tenth Company from New York, which had been shipped from Egmont Keys, Fla., to that place by mistake.

The Seventeenth Company brought the first signal material for use, and work was prosecuted the next day. On August 21 the remainder of the signal train arrived from Tampa, and on September 2 the remainder of the Seventeenth Company reported from Camp Greely, Fla.

On August 25 I addressed the following telegram to the Chief Signal Officer of the Army: "Signal material reached here August 19. Fourth Army Corps headquarters, division and brigade headquarters, corps and brigade hospital, all supply depots, telephone exchange in Huntsville, and Western Union Telegraph Company now all connected by telegraph or telephone."

Since that date a large number of important stations have been connected with the telephone system. This places every division and brigade headquarters, supply depot, and hospital in this army corps in communication with the Huntsville telephone system and with each other.

During the time the system has been in operation, a period of sixty-nine days, 5,691 telegraph messages have passed over the signal lines to the Western Union Telegraph Company and 3,162 telephone messages have been sent and received at these headquarters. The messages sent and received through the field exchange by the 21 outlying stations (of which it was impossible to keep a record) would aggregate many times the above number. It is believed that this record sufficiently demonstrates the necessity for as well as the value of such service.

During the existence of this camp the reorganization of brigades has been almost continuous, each change making necessary the recovery of old lines and the building of new ones to the new headquarters. The total number of miles of field lines erected has been 18.

On September 11 a detachment of 10 men was ordered to Omaha, Nebr., and on October 3 the Tenth Company left here for Boston, Mass., to be mustered out of service. Owing to the very small number of men available for work (only 23 being the average number), details from regiments have been necessarily made at all points excepting at headquarters and at the telephone exchange, where the Signal Corps men exclusively have been employed. They have also done all patrol work and line building.

The accompanying map and attached memorandum show the stations and field-telegraph lines as they exist in the Fourth Army Corps at this date. Electric time is furnished to the command daily over the Western Union telegraph lines.

To the great promptness with which all supplies have been furnished from your office, and the ample facilities that have always been afforded me to aid in my work, is due the greater part of whatever success has been attained.

The signal camp has this day been inspected by Maj. Gen. Grenville M. Dodge and ex-Governor Urban A. Woodbury, of the War Department investigating committee. Its condition reflected great credit upon the Seventeenth Company and the officers attached thereto.

Very respectfully,

R. P. STRONG,
Lieutenant-Colonel, Signal Corps, United States Volunteers,
Chief Signal Officer.

Means of communication provided for Fourth Army Corps, Huntsville, Ala., by Signal Corps, United States Volunteers.

Origin.	Terminus.
<i>Telegraph.</i>	
Headquarters Fourth Army Corps	Western Union Telegraph Company, Huntsville, Ala., and Nashville, Tenn.
<i>Telephone.</i>	
1. Headquarters Fourth Army Corps	Army Telephone Exchange.
2. Signal Corps camp	Office Chief Signal Officer.
3. Headquarters Second Division	Army Telephone Exchange.
4. Medical inspector	Do.
5. Headquarters Third Division	Do.
6. Headquarters Fifth Cavalry	Do.
7. Depot quartermaster	Do.
8. Depot commissary	Do.
9. Corps reserve hospital	Do.
10. Brigade hospital	Do.
11. Headquarters First Division	Do.
12. Headquarters Cavalry Brigade	Do.
13. Western Union Telegraph Company	Headquarters Fourth Army Corps.
14. Artillery battalion	Army Telephone Exchange.
15. Provost marshal	Do.
16. Clothing depot	Do.
17. Main quartermaster's corral	Do.
18. Headquarters wagon trains	Do.
19. Engineer Battalion	Chief Engineer's Office.
20. Quartermaster's storehouses at railroad depot ..	Army Telephone Exchange.
21. Headquarters Seventh Cavalry	Do.
22. City Telephone Exchange	Headquarters Fourth Army Corps and Army Telephone Exchange.
23. Army Telephone Exchange	

Telephone stations marked on map with numbers in white corresponding to those hereon.

HEADQUARTERS SECOND ARMY CORPS,
OFFICE OF CHIEF SIGNAL OFFICER,
Camp Alger, Va., August 2, 1898.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

SIR: In compliance with instructions, I have the honor to submit the following report of operations of the Signal Corps, United States Volunteers, with the Second Army Corps at Camp Alger, Va., from June 4, 1898, until August 2, 1898, inclusive:

In accordance with paragraph 19, Special Order No. 131, Headquarters of the Army, A. G. O., June 4, 1898, I reported June 6 to Maj. Gen. William M. Graham, United States Volunteers, at Camp Alger, Va.

The next day, June 7, operations were commenced with one enlisted man detailed from a volunteer regiment. Supplies were promptly furnished by your office, and by means of selected men from the various regiments it was possible within a few days to report to the Chief Signal Officer "that all brigade and division headquarters, commissary and quartermasters' supply depots and division hospitals were connected with Second Army Corps headquarters and with each other;" also, "that corps headquarters was connected by telegraph and telephone with the War Department and the chiefs of the supply departments at Washington, D. C."

This service was specially acknowledged by the Chief Signal Officer in a letter dated June 21, 1898.

The records not being available at this time, I am unable to give details as to the amount of business done over the lines.

It was necessary to maintain incessant communication, and the amount of service rendered was very great.

The organization and equipment of the regiments was progressing continuously, and the time required to accomplish this work was greatly lessened by the facilities for communication furnished by the signal department. This was notably so in the case of ordnance and clothing equipment.

The continued arrival and departure of troops, necessitating changes of brigade organizations, kept the Signal Corps busy recovering field lines and reconnecting them

as the new headquarters were established. The removal of brigade and division headquarters to the new camps near Dunn Loring also added much to their labors.

The total number of miles of field lines erected up to August 2 within the limits of Camp Alger was 15½ miles, and in addition 9 miles each of telegraph and telephone line connected the camp with the War Department, making 43½ miles in all.

The Sixth Company, Signal Corps, United States Volunteers, which was organized at Camp Alger, and which performed most of the work, was composed of men selected for special qualifications from over twenty-five thousand men. They were well equipped in every way and performed excellent service. The services of Second Lieut. Basil Lenoir, Signal Corps, United States Volunteers, were especially valuable.

On the 13th the Eleventh Company, Signal Corps, United States Volunteers, under Capt. Carl F. Hartmann, reported for duty.

When the cavalry was detached from the corps a bicycle-orderly service was established in connection with the headquarters offices and Signal Service lines. The service was efficient and an improvement upon that performed by cavalry orderlies.

As an instance showing the value of perfect communication within the limits of a military command and with the outer world the following episode is cited: The command had been paid July 2; through a misunderstanding as to the scope of orders suspending the usual drills over July 4, a large portion of one of the volunteer regiments left camp on the night of July 3 without authority, with the avowed purpose of visiting their homes in a distant State. Being met on the road leading to Washington by the commanding general, they disregarded his orders to return. Hurrying to his headquarters, the general ordered his provost marshal to arrest these men with his guard, and then called upon his chief signal officer to put the machinery of the Signal Corps in operation. Orders were at once telephoned to the provost marshal at Falls Church, the terminus of the electric-car line leading to Washington, to turn all men back; to the power house, to cut off the current and stop the cars then en route and loaded with absentees; to the chief of police at Washington to warn the guards at the Virginia terminus of the Aqueduct Bridge, Georgetown, D. C.; to the chief of the mounted squad to place mounted men at the Washington end of the Long Bridge and Aqueduct Bridge to prevent passage of soldiers, and to chief of detectives to station men at all railroad depots in Washington to arrest men attempting to leave the city on trains without passes.

Each division headquarters was "called" and the commanding officers summoned to the telephone by the corps commander. Personal orders were given to each to have the long roll sounded, each regiment paraded, and rolls called so that every man absent from the command might be determined. Soon the bugles were sounding throughout the camps, and shortly after the reports came rolling into headquarters.

The lines of communication had answered their purposes well; no part of the system failed. Men on the electric cars, which had been brought to a standstill, took to the roads, but the cavalry scouts herded them in. In Washington the guards at the railroad depot gathered in about thirty, who were returned the next morning after a night in the police station.

Here was a case of a whole army, scattered over several square miles, brought to "attention," as it were, in a few minutes, and orders issued accomplishing simultaneous action over many square miles of territory. In less than an hour the whole work had been accomplished and the camp resumed its usual quiet, broken only by the passage of the guards bringing in captives.

The means of communication furnished by the Signal Corps to commanding officers have been very extensive and of great value. The service has been of a high order, and any departure from the standard will be quickly noted and criticised. Quick methods of communication are no longer luxuries, but necessities, and the best will be demanded hereafter.

On August 1, I was relieved from duty with the Second Army Corps by Special Order No. 179, Headquarters of the Army, and ordered to report to Tampa, Fla., as chief signal officer Fourth Army Corps. At the instance of the commanding general my departure was delayed one day to arrange details for proposed move of the headquarters to Manassas, Va., leaving August 2.

The accompanying map and attached list will show the location of signal stations and the lines of communication at Camp Alger during my service there.

Electric time was furnished the command daily through the Western Union Telegraph Company.

Very respectfully,

R. P. STRONG,
Lieutenant-Colonel, Signal Corps, United States Volunteers,
Chief Signal Officer.

Means of communication provided for Second Army Corps, Camp Alger, Va.

Stations.	Connecting points.
<i>Telegraph lines.</i>	
Headquarters Second Army Corps.....	War Department and Western Union Telegraph office, Washington, D. C.
<i>Long-distance telephone.</i>	
Headquarters Second Army Corps.....	War Department and Washington City telephone exchange.
Do.....	Army telephone exchange, Camp Alger.
Headquarters Second Army Corps; quartermaster, commissary, and ordnance-supply depots at Dunn Loring, Va.	Headquarters Second Army Corps, heads of bureaus at War Department, and Washington City telephone exchange.
Headquarters Second Army Corps.....	Through Washington City telephone exchange to Fort Myer and Fort Sheridan, Va., and Fort Washington, Md.
<i>Camp field lines.</i>	
Headquarters First Division, Maj. Gen. M. C. Butler.	Army telephone exchange.
Headquarters First Brigade, First Division, Col. Campbell, First New Jersey.	Do.
Headquarters Second Brigade, First Division, Brig. Gen. Garretson, United States Volunteers.	Do.
Headquarters Third Brigade, First Division, Col. Carson, Thirteenth Pennsylvania.	Do.
Headquarters Second Division, Brig. Gen. G. W. Davis, United States Volunteers.	Do.
Headquarters First Brigade, Second Division, Col. Barnett, One hundred and fifty-ninth Indiana.	Do.
Headquarters Second Brigade, Second Division, Brig. Gen. Schall, United States Volunteers.	Do.
Headquarters Third Brigade, Second Division, Col. Abbott, First Rhode Island.	Do.
Headquarters Separate Brigade, Brig. Gen. Duffield, United States Volunteers.	Do.
Second Division hospital.....	Do.
First Division hospital.....	Do.
Headquarters Thirty-fourth Michigan Volunteers.	Do.

Army telephone exchange at First Division headquarters. All points connecting army telephone exchange connect with each other. Telephone stations marked on map with numbers in white corresponding to those hereon.

WASHINGTON, D. C., *November 4, 1898.*

The CHIEF SIGNAL OFFICER, UNITED STATES ARMY,
Washington, D. C.

SIR: I have the honor to submit herewith a brief report upon the operations of the Signal Corps troops under my command from the date of my assignment as chief signal officer of the Third Army Corps on the staff of Major-General Wade until the present, with outline maps showing the telegraph and telephone lines constructed and operated at Camp Thomas, Chickamauga Park, Ga., Camp Hamilton, Lexington, Ky., and Camp Poland, Knoxville, Tenn.

The Third Army Corps was organized in two divisions at the time of my arrival for duty, June 27, 1898, and no Signal Corps troops or equipment had previous to this time been assigned to the corps, the necessary signal service being performed by the signal detachment attached to General Brooke's headquarters, and under the immediate command of Capt. (now Lieut. Col.) William A. Glassford, of the regular Signal Corps. Under Colonel Glassford's efficient command telephone lines had been constructed, connecting each corps, division, and most of the brigade headquarters with a central station at General Brooke's headquarters, where a signal sergeant was constantly kept on duty day and night, and lines to the quartermaster's depot, the commissary depot, the chief quartermaster's office, chief commissary office, General Boynton's headquarters, the different division hospitals and ambulance companies were constructed and connected to "central" for the efficient and speedy transaction of the administrative business of a great camp of over 50,000 men. The Western Union and Postal Telegraph companies had also field offices for commercial business at general and corps headquarters and at two or three other points in the park, while the local telephone company of Chattanooga had a special wire run to General Brooke's headquarters, by which also the city was connected with the camp. Upon my arrival application was made to the Chief Signal Officer for at least two

full Signal Corps companies, one for each organized division of the corps, and for signal equipment complete for each company.

On July 8 the Third Company United States Volunteer Signal Corps, under command of Capt. Frederick T. Leigh, consisting of 4 officers and 54 enlisted men, arrived at Camp Thomas from Washington Barracks, D. C., and reported for duty with the Third Corps. They were encamped about a mile and a half from corps headquarters, as shown on the accompanying map.

On July 14 a detachment of Signal Corps recruits from Nashville, Tenn., under command of Second Lieut. Charles B. Rogan, jr., consisting of 1 officer and 20 enlisted men, reported for duty and were attached temporarily to the Third Company, for subsistence, equipment, and instruction.

On July 22 the Twelfth Company, United States Volunteer Signal Corps, under command of Capt. Frank Lyman, jr., consisting of 3 officers and 52 enlisted men, from Washington Barracks, D. C., reported for duty. For the proper and uniform equipment and instruction of these troops, they were encamped together and a battalion organization completed. The Third and Twelfth companies were each equipped with clothing, tentage, ordnance and signal supplies at Washington Barracks before leaving, and the wisdom of this was strikingly shown by comparison with Lieutenant Rogan's detachment from Nashville, which reported with no equipment whatever of any kind. Despite the most strenuous efforts not even a knife, fork or spoon could be obtained for these men for several days after their arrival, and it was necessary to borrow these articles at each meal from Captain Leigh's men after they had finished their meal. Owing to the large number of troops at Camp Thomas to be clothed in a short time, it was difficult to secure clothing for this detachment within a reasonable time, so that these men were finally clothed by measuring each man and telegraphing the entire list to your office, where this clothing was selected, packed, and shipped by express. By this prompt method much time was gained, and these men were enabled to be assigned later to the two companies in the battalion, and furnished some of the most efficient men in the command. The organizations had no transportation when they reported, and effort was made to secure this as soon as possible. Each company was finally equipped with transportation about as follows: Fifteen horses for mounts, 16 mules, 2 army wagons, 2 Signal Corps wagons. Besides these, for each company, the battalion as a whole had a wire wagon for the field telegraph train. Much delay was experienced in obtaining the horse equipments, which had to be secured by sending a requisition by mail to Washington, from there to Rock Island Arsenal, and from the arsenal the material was sent to the organization at Chickamauga. There was no ordnance depot or storehouse at Camp Thomas where these articles could be drawn directly.

Believing that the Third Corps would soon be sent to Cuba, the instruction and discipline of the signal battalion was pushed with vigor and with gratifying results. The high technical character and varied attainments of the officers and men made efficiency certain. The daily exercises and practical instruction instituted aimed to cover the varied duties which signal men may be called upon to perform before the enemy. A schedule of daily routine is given in battalion orders, a file of which is in your office.

Upon the departure of Colonel Glassford with General Brooke for Porto Rico, the maintenance and operation of the Signal Corps lines throughout the camp were assumed. At corps and division headquarters Signal Corps men were installed throughout the twenty-four hours to conduct the field telephone service. Their duty was to call the parties wanted, receive and deliver messages, and keep a record of the official business transacted over the lines. Owing to the nature of the country in the park, and the frequent rains, a party of linemen were kept constantly on duty or subject to call at any time.

For the convenience of officers and men who in some parts of the camp were 2 or 3 miles from general headquarters, commercial messages were received and the proper toll collected at Signal Corps telegraph offices and sent to general headquarters for transmission by the regular companies. A careful account was required of each operator upon being relieved daily, and the amount turned over to the proper company.

The conditions for preserving the health of the men were not good, and therefore extra efforts were made to guard against disease. A surgeon visited the camp daily at sick call, and a hospital steward and hospital private were detailed for duty with the Signal Corps camp. A hospital tent and ordinary medical supplies were obtained for the exclusive use of the battalion. Because the water was bad, filters were finally obtained, and each man required to drink filtered water only, but the conditions made it difficult to strictly carry out such an order.

Several practice marches were made for the instruction of the men in packing the wagons and supplies, and in hasty subsistence on the march, and they proved instructive and beneficial to officers and men. Occasion was had at such a time to have a limited amount of target practice with pistols.

On August 6 the Sixteenth Company United States Volunteer Signal Corps, from Washington Barracks, under command of Capt. S. S. Sample, reported for duty to relieve the signal battalion of the Third Army Corps, which was under orders to proceed to Newport News, Va., for embarkation with General Wade's expedition to Porto Rico.

On August 8 the third and twelfth companies, under my command, left Camp Thomas on a special train for Newport News, arriving there on the morning of the 10th.

There being no transport ready, the battalion went into camp on a high bluff on the banks of the James, on a vacant lot within the town, kindly offered for the purpose. The order for further troops to proceed to Porto Rico having been suspended, the battalion remained in camp at Newport News for about two weeks, when it was broken up and assigned to other duty. While at Newport News a detachment of specially selected men, under command of First Lieut. Henry G. Opdycke, was sent to Fort Monroe with transportation, tentage, and subsistence, where within ten days they rendered valuable assistance in overhauling and repairing the electrical connections at that post.

The Third Company, under command of Capt. Frederick T. Leigh, was selected for duty at Santiago, and left by the steamer *Old Dominion* for New York, for embarkation on the Government transport *Seguranca* for Santiago de Cuba.

Although orders were received from Washington that no man disinclined for service in Cuba should be required to go with the company, since the protocol had been signed and opportunity would be given for discharge, yet 39 men volunteered to go.

August 25 the Twelfth Company, Capt. Frank E. Lyman, jr., commanding, left Newport News for Chickamauga Park.

After superintending the departure of the Third Company at New York for Santiago, I reported again at Camp Thomas, Chickamauga Park, August 26, 1898, to Major-General Breckenridge and was assigned as chief signal officer of the camp.

Upon the arrival of the Twelfth Company from Newport News the Signal Corps troops at the camp at that time were the Twelfth and Sixteenth companies, which were encamped together on Snodgrass Hill, and a new battalion organized. At this time the troops were fast leaving for smaller camps at Anniston, Ala., Knoxville, Tenn., and at Lexington, Ky. Orders were received to send Signal Corps detachments for service at each of these camps, and accordingly Captain Sample, with two lieutenants and a detachment of men from the Sixteenth Company, left for Anniston, Ala., with Brigadier-General Frank, on September 2, 1898, arriving on the morning of September 3.

First Lieut. A. G. Thompson, with one officer and a detachment from the Twelfth and Sixteenth companies, left Chickamauga Park on September 3 for Camp Poland, Knoxville, Tenn.

Capt. Frank E. Lyman, jr., with two officers and a detachment of the Twelfth Company, left Chickamauga Park on September 4, 1898, for Camp Hamilton, Lexington, Ky.

Sergt. Lyman P. Hale, of the Sixteenth Company, with a small detachment, was left at Camp Thomas in charge of the Signal Corps lines left standing at the park for the use of the hospitals and the different supply depots not yet closed. For a detailed account of the Signal Corps work of each of these detachments, I refer to the reports of each of the officers commanding, which are forwarded herewith. Outline maps of the signal lines at Camp Thomas, at Camp Hamilton, and at Camp Poland are also submitted and explain themselves.

I wish, in closing this report, to record my appreciation of the zeal, intelligence, and skill shown by the officers and men of the Signal Corps battalion, and especially to acknowledge the efficient services of First Lieut. William Jarvie, jr., Third Company, now in Santiago, who was battalion adjutant, and to First Lieuts. A. G. Thompson and Henry G. Opdycke, who served at different times as battalion quartermasters.

Very respectfully,

GEORGE O. SQUIER,

Lieutenant-Colonel, United States Volunteer Signal Corps.

SAVANNAH, GA., November 5, 1898.

The CHIEF SIGNAL OFFICER, UNITED STATES ARMY,
Washington, D. C.

SIR: I have the honor to make the following report relative to the work of the Signal Corps companies attached to the Seventh Army Corps:

As this corps has as yet had no active service, the work has consisted principally in the maintenance of a system of intercommunication by telephone and telegraph between its different subdivisions.

Second Lieut. H. W. Stamford, United States Volunteer Signal Corps, reported at the headquarters of the Seventh Army Corps, at Jacksonville, Fla., on June 28, 1898,

with twenty-three men. The Second Company, United States Volunteer Signal Corps, under command of Capt. Howard A. Giddings, arrived on July 4, and Captain Giddings assumed command of the signal camp which had been established. Capt. Charles T. McIntire arrived on the 31st day of July with the Fourteenth Company, United States Volunteer Signal Corps. I arrived at Jacksonville on August 6, and reported for duty as chief signal officer of the Seventh Army Corps. The Fourteenth Company having been ordered mustered out, left for Indianapolis on September 14. A portion of the Thirteenth Company, United States Volunteer Signal Corps, under command of First Lieut. Charles M. Duffy, reported September 15, Capt. George R. Gyger, its permanent commander, arriving on the 26th. Capt. Howard A. Giddings, Second Company, United States Volunteer Signal Corps, having resigned on September 28, 1898, Capt. John J. Ryan, United States Volunteer Signal Corps, was assigned to this company and reported for duty on October 16.

The main system of intercommunication established at Jacksonville was a telephonic one, the several headquarters, depots, hospitals, and offices of the staff departments being placed upon lines which were brought together at the camp of the Signal Corps, where a small telephone exchange was kept in operation. In addition to this, a short telegraph line connecting the headquarters of the Seventh Army Corps and the telephone exchange with the main office of the Western Union Telegraph Company was constructed, as well as a line of about 25 miles in length connecting corps headquarters and the Western Union telegraph system with the camp for convalescents at Pablo Beach. The location of offices upon the telephone lines was changed from time to time as troops were moved from one camp to another, and while the First Division was camped at Miami, Fla., an independent telephone line connecting its subdivisions was constructed for its use and operated by a detail of one noncommissioned officer and two men. The location of the several offices, telephonic and telegraphic, as they were at the beginning of October, 1898, is shown upon the inclosed map.

During the months of August and September a systematic course of instruction was pursued looking to the thorough instruction of the officers and men of the command. This comprised drills and practical work with the field train and signal equipments, as well as schools for officers and noncommissioned officers. The mustering out of the Fourteenth Company and the large number of discharges made from the other companies, together with the absence of many men on furlough, necessitated the cessation of the regular course of instruction in the latter part of September.

On October 22 the command left Jacksonville and arrived at Savannah that evening. As the troops comprising the Seventh Army Corps arrived they were rapidly placed in communication with the signal corps camp, and through it with the De Soto Hotel, where corps headquarters had been established. At Savannah the telephonic system has been reinstalled and telegraph lines have been built connecting corps headquarters and the telephone exchange with the telegraph system of the country, and also lines connecting corps headquarters with each of the division headquarters. The system of call bells and annunciators on the target range at Savannah has also been put in thorough repair. A map showing the location of lines and offices established here is appended.

In view of the probable service abroad of this corps in the near future, the filling up of the Thirteenth Company to its maximum limit is requested. Although it would appear that there are two signal companies on duty here, the Thirteenth Company is a mere skeleton. It was found, immediately after the move from Jacksonville to Savannah, that rapid work in the replacing of the system of communication required the addition of more men. The total length of lines built at Jacksonville was about 42 miles. At Savannah not as much line was required, owing to the more compact arrangement of the camps, but a great deal of line erected here was through the business streets of the city, where the poles of commercial companies had to be used.

Very respectfully, your obedient servant,

J. E. MAXFIELD,
Lieutenant-Colonel, United States Volunteer Signal Corps,
Chief Signal Officer.

APPENDIX 9.

ORDERS, }
No. 13. }

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, September 13, 1898.

The disintegration of the United States Volunteer Signal Corps begins with the relief this day from active duty of the Fourteenth Company, under orders, with a view to its furlough and muster out. Debarred by stress of duties at his designated

post from participating in field service with the companies of the Signal Corps, the Chief Signal Officer of the Army can not permit his men to return to civil life without some word of acknowledgment of their loyal, efficient, and valuable services to the nation.

Despite this being an age of electricity, nearly a month passed after the legislation creating a great volunteer army before authority of law was granted for the organization of a volunteer signal corps; nevertheless its members can truly claim that this corps has failed in no duty and been found wanting in no emergency, and there were many.

The history of the volunteer and regular corps are inseparably connected; for the 60 regulars—men and officers—were but a framework to the 116 officers and 1,000 men in the volunteers. Apart from the Chief Signal Officer, every regular signal officer but one served as a volunteer, and all, without exception, have been merged and unified into one command.

With the war practically ended, the brief recital of your services is not vainglorious, but may serve as a standard which we trust the American soldier of the twentieth century will strive to excel in days of future peril to the Republic.

In the Santiago campaign you were the first of the army to arrive, as you were the last to leave. Destroying within range of Spanish guns the submarine cables that gave the enemy daily information of inestimable value, when the occupation of Santiago was ordered you repaired cables with such celerity that you opened communication between the United States Marine Camp at Caimanera (Guantanamo), and New York City on June 21, the day prior to the landing of the Fifth Army Corps off Santiago. Detained even after the homeward voyage of your commanding general, you formed the last organized command to leave the conquered city, and some even now are not free from detention camp. Battles may be fought and epidemics spread, but speedy communications must nevertheless be maintained, and owing to your efforts the American army in Cuba has not been isolated telegraphically a single day.

In the Cuban campaign you arranged, maintained, and operated a system of cable and land lines—partly commercial, partly war cables, partly flying-telegraph lines, and partly telephone lines—that enabled messages to pass in twenty minutes from the Executive Mansion in Washington to the headquarters of the army before Santiago, and which offered direct and immediate communication between the Secretary of War in his office and the Signal Corps men in the advanced rifle pits on the right, the left, and in the center of our intrenched army within 400 yards of the enemy. When the city fell your lines followed immediately army headquarters as it moved therein.

No one will ever know the difficulties—physical and moral, climatic and service—under which you labored in Cuba. Heat and thirst, hunger and fatigue—these present sufferings, with impending disease and death—you endured and faced uncompromisingly with the rest of the army; but these conditions never prevented the prompt, cheerful, and efficient discharge of the important duties devolving unrelentingly day and night on the Signal Corps.

Although not counted a part of the fighting force of the army, you unhesitatingly advanced, in obedience to orders and under the direction of an officer of another corps, the signal corps balloon to the skirmish line, where you sent up and occupied it under sharp fire of shrapnel and heavy fire of musketry until, rent and perforated, it fell useless to the ground. Later, your balloon destroyed, you carried to the front, under heavy fire, rapid-firing guns for the use of the First United States Volunteer Cavalry (Rough Riders).

In Porto Rico you were ever with the advance, participating as scouts and skirmishers in the capture and occupation of towns. From the beginning to the end of the campaign you kept each important command in telegraphic or telephonic communication both with the corps commanders and also with the base of operations. Your action and persistency speedily replaced the special cable instruments destroyed by the enemy, thus making possible immediate telegraphic communications with the United States. Such were your energy and dispatch that nearly 200 miles of wire were being operated by you in Porto Rico when the peace protocol initiated an armistice.

In the Philippines you were always to the front, and throughout siege operations constructed and maintained telegraph and telephonic lines in the advance trenches at Manila, remaining with the rest of the army under fire daily, under conditions so dangerous that 5 officers were brevetted and several men recommended for medals of honor. The city taken, your application and ingenuity repaired the severed Manila-Hongkong cable days in advance of the arrival of the English cable ship, and this very day marks the laying of a signal-corps cable between Cavite and Manila.

Less exciting, but scarcely second in importance, were your duties at the great camps of the country, Alger (Falls Church, Va.), Cuba Libre (Jacksonville, Fla.),

Meade (Middletown, Pa.), Thomas (Chickamauga Park, Ga.), Wikoff (Montauk Point, Long Island), and others, where telephonic and telegraph systems, indispensable for proper administrative purposes, were promptly established without waiting for formal application.

The connections by cable of the principal forts in our great harbors and the initiation and installment of an entirely new electrical fire-control system were also your labors. Meanwhile, throughout the war, the military telegraph lines around the great Indian reservations and along the Mexican frontier were as regularly maintained and faithfully operated as in peace.

Wise restrictive legislation by Congress, in obliging two-thirds of the Signal Corps to be electrical experts, recognized, theoretically, the value to the Signal Corps of competent officers and intelligent men. It has remained for you to practically demonstrate this in the unique character of service rendered by you to the Government. While your service everywhere has been of the highest character, you have especially illustrated that development of character necessary to expert work by your devotion as officers and your obedience as men under the trying and monotonous conditions of camp and garrison life, where the soldier and officer are fashioned day by day for the supreme moment of battle. The lessons there learned have served you well.

The Signal Corps has filled neither the guardhouse nor the hospital. Serving in the field in Cuba, in the Philippines, and in Porto Rico, and in home garrisons at Tampa, Chickamauga, Camp Alger, Jacksonville, and Montauk, yet your total aggregate of over 1,300 has lost by disease in camp and field, to date, only 5—officers and men included.

As our roads part and the greater number of the Signal Corps go back to the paths of civil life, the Chief Signal Officer of the Army gives you all God-speed, hoping that the hardships of war, while making you advocates of all peace that is not shameless and unpatriotic, will ever make you mindful of the value and welfare of the regular Signal Corps, of which you have been so great a part in the war, to the glory of the American Army.

A. W. GREELY,
Brigadier-General, Chief Signal Officer, United States Army.

APPENDIX 10.

REPORT OF MAJ. EUGENE O. FECHÉ, DISBURSING OFFICER OF THE UNITED STATES VOLUNTEER SIGNAL CORPS.

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: I have the honor to submit the following report for the period of June 1 to September 30, 1898:

PERSONAL.

Under General Orders, No. 128, A. G. O., Washington, June 1, 1898, I relieved Maj. Robert Craig, Signal Corps, United States Army, as disbursing officer, receiving from him all funds and property for which he was accountable.

Major Craig was taken sick in April, and up to date of relief was unable to perform any duty, consequently when I assumed the duties of disbursing officer the current work of the office was very greatly in arrears.

With the passage of the act making appropriations for "national defenses" the clerical force on duty in this division consisted of but two enlisted men—sergeants, United States Signal Corps.

In order to handle the largely increased amount of work resulting from the purchasing and forwarding of supplies to the commands in the field, the small clerical force was increased by three clerks, one of whom was an accountant; so that during the period of the greatest activity, from June 1 to September 30, all the work of the division was practically performed by the disbursing officer and this exceedingly small force.

Owing to the very limited room space at the disposal of the Chief Signal Officer for the entire Bureau, the clerks of the disbursing division had to share a room 20 by 20 feet with three other clerks. This room is on the fourth floor and has a western exposure, consequently excessively hot.

In this limited room space seven clerks have worked throughout the summer, and notwithstanding two large electrical fans were constantly in motion, the temperature in this room ranged for many days from 95° to 97° F.

Under these unsanitary conditions and with great physical discomfort my clerks faithfully performed their arduous duties; regular hours for stopping work were disregarded and nine to ten hours daily became the rule, and a part of the clerical force worked every Sunday throughout June, July, and August.

CHARACTER OF THE WORK.

The usual routine work of the disbursing officer consists in the preparation of the estimates for appropriations; the purchasing, under bids and specifications, of signal supplies; packing, shipping and invoicing of same; the preparation of money accounts and property returns of the disbursing office, etc., but with war conditions the work necessarily took a larger range.

A large army was to be furnished with all the appliances for advanced methods of electrical and visual signaling, and also provision was to be made for the procurement of all the requisites for electrical installation of the fire-control system of the forts guarding the harbors in the country.

All this meant the purchasing of a great variety of supplies—from the simple flag and staff to complex electrical instruments, from ordinary telegraph wire to armored submarine cable, and from signal kites to great war balloons.

Hardly any class of supplies and equipment could be found ready-made and awaiting a purchaser. Signal equipment, whether for visual or electrical communication, is special and technical; hence time became an important factor in the problem that was to be solved, viz, to so order equipment from the manufacturer as to be able to fill requisitions at once and with the minimum of delay.

It is believed that the work has been fairly well accomplished and as economically as possible.

APPROPRIATIONS.

As a result, several years ago, of the reduction in the annual appropriation for the Signal Corps from \$22,000 to \$18,000, there was on hand upon the declaration of war but \$800 available to supply the entire Army with modern, up-to-date signal equipment.

Upon the declaration of war the work imposed by law upon the Chief Signal Office required a large addition to the regular appropriation to meet the new conditions. Allotments from the several war appropriations were made as follows:

National defenses (war)	\$241, 400. 00
Deficiency acts, May 9 and July 7, 1898, "Signal Service of the Army, January, 1899"	367, 000. 00
Total	608, 400. 00

DISBURSEMENTS.

The chief items of war expenditures from March 25 to September 30, 1898, fall under the following headings:

For maintenance, operation, and rental of cables	\$182, 830. 47
Telegraph and telephone lines, instruments, batteries, and supplies	65, 670. 53
Heliographs, kites, lanterns, and other visual signaling	16, 833. 65
Field glasses and telescopes	12, 614. 25
Lance trucks and wire wagons	7, 616. 43
War balloons and expenses in connection therewith	21, 514. 42
Electrical installation at posts of fire-control system, etc.	16, 484. 36
Miscellaneous (company outfits, stationery, furniture, photographic material, etc.)	12, 278. 07

ESTIMATES.

The estimates for the fiscal year ending June 30, 1900, of \$47,500 are based upon the assumption of the Army being increased to 75,000 men. Calculations for the above estimates were very carefully made, and it is not believed that any material change should be made in them. Should the Regular Army be increased beyond 75,000 men, the appropriations for the Signal Corps for the coming fiscal year should be proportionately increased.

The estimate of clerical force required in the disbursing branch of the Chief Signal Office is respectfully submitted:

1 storekeeper and assistant to disbursing officer	\$1, 400
1 invoice and property clerk	1, 200
1 stenographer and typewriter	1, 000
1 messenger	840
1 laborer	600
1 packer	600
Total	5, 640

It provides for but two skilled accountants, viz, a storekeeper and assistant to the disbursing officer and an invoice and property clerk at an annual cost of \$2,600. The third clerk, who shall be a stenographer and typewriter, is needed for the large correspondence of this office. The messenger, laborer, and packer are equally indispensable, since the chief supply depot of the entire Signal Corps is located in Washington, and forms a part of the disbursing branch.

The total cost of the administration of the disbursing office for the fiscal year ending June 30, 1900, is but \$5,640, and in view of the probable increase of the Regular Army fully threefold its present strength, and the large increase of work in this office, it is not believed that any reduction from this amount should be made.

Very respectfully,

EUGENE O. FECHÉT,

Major, United States Volunteer Signal Corps, Disbursing Officer.

APPENDIX 11.

REPORT OF CAPT. OTTO A. NESMITH, UNITED STATES VOLUNTEER SIGNAL CORPS, ASSISTANT TO THE CHIEF SIGNAL OFFICER, ON GENERAL CLERICAL WORK OF THE SIGNAL OFFICE.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, October 29, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.

SIR: In compliance with instructions from the Chief Signal Officer, I have the honor to submit the following brief report on the work of the Signal Office:

The work accomplished by this office can be told in the most general way only, for to enter into detail would involve repetition and defeat the purpose of brevity sought.

This office, the clerical force of which has been for years most inadequate even under normal conditions, was confronted in the early part of the calendar year with the approach of war, and long before actual hostilities were declared was overwhelmed with communications bearing either directly or remotely upon the work of the Signal Corps.

Thousands of letters from applicants for commissions, for enlistment or employment, from inventors or promoters of aerial, telegraphic, signaling, and other devices, poured in until it became impossible to separately consider or treat them, and skeleton letter forms, for different subjects, were devised to fit typical cases and, so far as possible, save clerical labor, and yet furnish a reply to the communications.

The thousands of applications for enlistment above referred to were as rapidly as possible classified and abstracted, the writers instructed as to further mode of procedure on their part, and lists prepared showing name, address, qualifications, and recommendations of each applicant, so that when the Volunteer Signal Corps was authorized by law and its recruiting officers ready to enroll, these lists, geographically divided, gave to them invaluable information and greatly facilitated the work of enlistment, doing much toward securing for the corps the high standard of quality it developed.

In addition to all the new class of work forced upon the office, its original work was increased in proportion to the increased activity and necessities engendered by war conditions, the regular correspondence and routine clerical work assuming proportions far beyond the power of the small force to properly handle.

To still further complicate matters the working force of the Signal Office was suddenly reduced to one experienced clerk, and the temporary appointments made were necessarily those entirely unacquainted with the technical and military work of the office, requiring that each one should be specially instructed; and, as circumstances required that each clerk should be a general clerk, and not confined to one class of work, the matter of instructing new appointees, devolving as it practically did upon the officer in charge, in addition to his other and more important duties, became a serious problem, and with the repeated changes occasioned by transfers, sickness, etc., requiring renewed instructions in each case, greatly embarrassed the office, and in addition the lack of office space enhanced the difficulties encountered.

When it is understood that not only the general correspondence pertaining to such an office, but correspondence of every kind bearing upon the movements of the Corps, either collectively or individually, and with reference to its personnel and kindred subjects, has been carried on by this small force, some idea may be had of the energy, intelligence, and constant work required to accomplish it.

Under a comprehensive card system the records of the military history in detail of every officer and man of the Corps have been kept, showing date and circumstance of entry into the service, rank, subsequent promotion, assignments, duties, etc., which,

having been added to and kept up to date, so far as records received at the office have rendered possible, have been brought into use daily in the work of the office, and will prove invaluable when the permanent records of the Signal Corps are to be completed.

The control by the Chief Signal Officer of the telegraph and cable censorship increased to a great extent the work of the office, making necessary the handling of much business that came to it unexpectedly though legitimately. In the matter of telegrams alone (the majority of which were necessarily in cipher, requiring unusual care on the part of the typewriters to avoid errors while writing words having no meaning to them and at the same time attain the necessary dispatch) the strength of the force was often greatly taxed.

In spite of all these drawbacks the work of the office has been carried on at all times with but a minimum of delay, and important matters received practically immediate attention.

It was expected that when the organization and muster-in of the Volunteer Signal Corps was accomplished the amount of work would lessen, but with actual service in the field and camp, with frequent changes, came new conditions that required adjustment and routine matters to be disposed of, so that no relief resulted, but together with the work attendant upon the muster-out of some of the companies, made necessary by the reduction of the Volunteer Army, have continued to keep up the high limit of office work.

And yet under such conditions no effort, in obedience to the expressed wishes of the Chief Signal Officer, has been spared at any time to promote the welfare of the members of the Signal Corps in field or camp, and particularly those with the invading armies on foreign soil, to facilitate correspondence between the men and their relatives and friends at home and to keep them advised as to physical condition when occasion for anxiety arose.

There still remains an enormous amount of work to be done to properly classify, card, etc., the thousands of communications that in the rush of such a period could be only acted upon and so treated as to be available for current reference, leaving to the future the work of regular entry, which work, however, is now being attempted as opportunity offers in the handling of a paper, or where a moment can be spared from the necessary current work.

In conclusion, I can not refrain from speaking in appreciative terms of the clerical force of this office. Intelligent and industrious, their capacity for work has been only equaled by their zeal and willingness. Leaves of absence have been almost unknown even throughout the unusually trying weather of the past summer, and the constant call through these many months for extra hours of labor, necessarily imposed, has in no wise affected their cheerfulness or the quality of their work.

Very respectfully,

OTTO A. NESMITH,
Captain, United States Volunteer Signal Corps, Assistant.

APPENDIX 12.

REPORT OF LIEUT. COL. GEORGE O. SQUIER AND PROF. ALBERT C. CREHORE ON DISCOVERIES AND EXPERIMENTS IN SINE-WAVE TELEGRAPHY.

WASHINGTON, D. C., *October 29, 1898.*

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: We have the honor to submit herewith a preliminary report upon recent experiments with the sine-wave system of transmission of signals over submarine cables.

A technical report upon the physical side of this work will be submitted as soon as the time and opportunity have been afforded which the subject demands.

In compliance with Special Orders, No. 212, A. G. O., dated Washington, September 9, 1898, Lieut. Col. George O. Squier, United States Volunteer Signal Corps, was directed to proceed from Camp Thomas, Chickamauga Park, Ga., to Cleveland, Ohio, and New York City, under special instructions from the Chief Signal Officer of the Army, which were to conduct, with Prof. Albert C. Crehore, assistant professor of physics, Dartmouth College, some preliminary tests of a new system of submarine cable transmission.

These tests were made in New York between the dates of the 25th of September and the 16th of October, 1898, upon a cable of the Commercial Cable Company, known as the Coney Island Cable, extending from New York City to Canoe, Nova

Scotia, which is a part of one of the regular commercial circuits used by this company between the United States and Europe.

It is desired to record, at the outset of this report, our obligation to the Chief Signal Officer of the Army for his encouragement and support.

The first experiments upon the sine-wave system of telegraphy were made at the Artillery School, Fort Monroe, Va., a description of which was given in a paper* read before the American Institute of Electrical Engineers in New York and Chicago, April 21, 1897, to which reference is made.

The next logical step was to test the system upon long telegraph lines, and for this purpose the inventors went to England, and were afforded every facility to do so over the Government telegraph lines, through the courtesy of the postmaster-general, and Mr. William H. Preece, engineer-in-chief of the British postal system. These experiments were made with the object of determining whether there was an advantage for code telegraphy in the use of a modern alternating current smooth wave, the typical form of which is the simple sine wave, and the experiments were conclusive in favor of the use of such a wave, in distinction from that now exclusively employed throughout the world. With the sine-wave system words were sent and received at the rapid rate of over 3,000 words per minute.

The speed of the commercial telegraph receiver now generally used in England, known as the Wheatstone receiver, was at that time increased by the new method of transmission as much as threefold when operated under identical conditions of the line. These experiments were described in a paper† before the Franklin Institute, Philadelphia, January 19, 1898, to which reference is made.

Up to this time only experimental apparatus was required, but when the physical superiority of this character of wave was confirmed the next step was to construct transmitters capable of meeting actual commercial conditions.

The results obtained over aerial lines strengthened the opinion that the type of sine wave would be more efficient than the square-topped type heretofore employed for the transmission of electric signals over submarine cables; and at the same time that machines were being constructed to operate on land a cable transmitter was also made. The cable transmitter was completed and the other instruments were well advanced when the war with Spain interrupted further immediate progress.

When in September the opportunity to continue these experiments was presented it was determined to test the cable transmitter without delay, and for this purpose the Commercial Cable Company kindly consented to the use of one of their cables for the purpose. The cable experimented with is that between New York City and Canso, Nova Scotia, which has a length of 826.67 knots, an electrical resistance of 13,706 ohms, and an electrical distributed capacity of 231.4 microfarads. Messages are prepared for transmission in the new system by perforating a paper tape with the same perforator which is at present universally used for cable working, and are transmitted by feeding the prepared paper through the transmitter in the usual manner.

The receiver to be used is not different from that generally employed—the siphon recorder. The only change introduced is in the transmitter, and in this there is a distinct physical difference from other transmitters, which may be briefly described by saying that it sends upon the cable electrical waves of very different shape from those sent by the present instruments. Experiment shows that whatever the shape of the electromotive force wave employed in transmission, if it is periodically alternating the resulting record received is about the same in all cases, and resembles a sine wave very closely in shape. Whatever irregularities and sharp corners existed in the original waves, these are all smoothed over and removed by the action of the cable in transmission, so that the record received has much the same appearance in any case. If, however, a wave is employed in the transmitter of the same shape as that which is naturally received, it should be anticipated that better results would be obtained, because the cable, so to speak, has no work to do in removing the irregularities and sharp corners of the transmitted wave, since they did not exist.

The result of the tests with the cable is that the signals received show a greater amplitude and have better definition when the new transmitter is used, and when the present automatic transmitter is employed. This is true, whatever the speed of transmission, the comparison being made between the transmitters under identical conditions of the line, extending over a range of speed from 100 to 180 letters per minute. This means that the sine-wave transmitter may be employed at a greater working speed than the present transmitter and secure an equally legible record at the receiver.

* The Synchronograph, a new method of rapidly transmitting intelligence by the alternating current—Crohn and Squier. *Journal of United States Artillery*, July, 1897. Paper presented to the International Postal Congress, Washington, May, 1897.

† Tests of the Synchronograph on the telegraph lines of the British Government, the Wheatstone receiver operated by the alternating current.

The conditions for the transmission of intelligence over long cables are quite distinct and different from those on aerial lines, and the necessity for each additional letter per minute is hardly appreciated until examined from a commercial standpoint. An increase of a single word per minute, at 25 cents per word, bearing in mind that the cable is used duplex—that is, to transmit messages in opposite directions at the same time—gives some estimate of the value of increasing cable speeds.

It is thought that these experiments are particularly pertinent at this time from a governmental point of view, when the United States finds itself necessarily interested in cable transmission more than at any previous time.

For a period of thirty days during the war with Spain the telegraph expenses of the War Department alone approximated \$75,000, and are at present averaging, approximately, \$10,000 per month.

Although this report refers to the results of recent experiments with a submarine cable, yet as bearing upon the general subject of intelligence transmission which we are investigating, some observations upon the importance of improving the art of transmission on aerial lines are given.

It is a fact that at the present time, more than fifty years since the introduction of the telegraph, nine-tenths of the telegraph business of the world is transmitted by hand. From an electrical point of view, one naturally asks why it is, that during this period which represents more electrical progress than all time previous, the rapid transmission of intelligence has not made more advance.

To show the volume of intelligence transmission in the United States, including the mail, the telegraph and telephone services, reference is made to fig. 1, where these statistics are presented in graphical form.

It is noticed in general that there is an increase in all departments of the intelligence transmission service from the earliest dates. The number of pieces of mail sent during 1896 was 5,693,000,000, which is the greatest amount ever sent in a single year. The greatest number of telephone messages on record for a single year is 757,000,000 in 1895. The largest number of telegraph messages was sent in 1893 and amounted to 66,000,000. Thus the greatest number of telegraph messages as compared with telephone messages is in the ratio of 1 to 11½. The greatest number of pieces of mail is in the ratio of 86 to 1 as compared with telegraph messages, or in the ratio of 7½ to 1 as compared with telephone messages. It is also seen that the cost of the mail service of the United States in 1896 was \$90,626,000, or about \$1.25 per capita; the greatest receipts for any year of the American Bell Telephone Company were in 1895 \$16,400,000, about 25 cents per capita, while the greatest receipts of the Western Union Telegraph Company were in 1893 \$24,978,000, about 35 cents per capita.

It appears therefore that the people of the United States pay for a telegraph service of about one eighty-sixth the amount about one-fourth of that paid for the entire mail service of the United States. It also costs one and a half times as much for telegraph service as for the telephone service, although the number of telephone messages is about eleven and a half times as great.

A conclusion seems to be that the people are willing to pay more in proportion for a kind of service like that of the telegraph than any other. From the point of serving the people, as well as from a business standpoint, it appears that improvement in this class of intelligence transmission is at present much to be desired. The present state of the art of telegraphy points to improvements along the line of automatic machine transmission.

It is of interest to inquire what effects a system of telegraphy capable of sending continuously 3,000 words a minute would have on the existing methods. To take a single example of the business between New York and Chicago, where about 40,000 letters are carried daily, it would require but two lines in continuous operation to handle the entire business. At present it takes three days to receive by mail a business reply between New York and Chicago. This transmission by automatic telegraphy could be accomplished easily the same day. It is thought that an effect of this would be to increase business transactions to such an extent that the total volume of intelligence transmitted would be augmented rather than to diminish the business now done by existing methods.

The class of business which such a system would probably at first obtain would be the less urgent telegraph business of greater volume, such as the Associated Press dispatches and newspaper press reports. Among the possibilities is the simultaneous publication of the same newspaper in different parts of the country. For example, in an edition of a daily paper having 12 pages and 8 columns per page, making 96 columns in all, there are less than 185,000 words. At the rate of 3,000 words per minute it would only require about an hour to transmit the entire contents of the paper. This calculation furthermore assumes that the whole paper is uniformly printed in fine type. It would require a single operator, working by hand and averaging 20 words per minute, over six days of twenty-four hours each to send this amount,

It is thought that a telegraph company of the future will fulfill a somewhat different function from the present ones. The tendency of the offices proper will be to transmit and receive letters already prepared rather than to undertake the preparation of the letters as well. The income of the company will be derived from the rent of its lines at a fixed price per minute, or a fixed price per hundred words. The service of the telegraph office then becomes like that of the post-office, its duty being to receive and deliver telegraph letters already prepared, as the post-office does. The difference between the two offices is in the manner in which this is accomplished. The telegraph office becomes a post-office which employs an electric current in a copper wire to carry its letters instead of a railroad train. The advantages in point of speed of delivering letters by the former method are apparent. Instead of requiring twenty-four hours to deliver letters between New York and Chicago, it will require but a few hours at most, and make it possible to receive a reply the same day. It is probable that such a system would take more business from the present postal system than any other; for when telegraph letters can be sent at reasonable rates comparable with postage in a few hours instead of as many days, a certain amount of present post-office business will be diverted. More than this, when business can be done with greater facility than at present, the total volume of business will undoubtedly be increased, because transactions may take place in a day which now require a week.

A telegraph-letter service has actually been in operation during the recent war with Spain, and is responsible as much as any other agent for the great results accomplished in so short a period.

The Army has been organized, equipped, and operated by telegraph letters, and war between civilized nations is impracticable at present without such a service.

The commercial and industrial benefits to the people of the United States of a telegraph-letter service at rates which are not prohibitive as at present, would be no less evident than they have been during the war with Spain.

Very respectfully, your obedient servants,

GEORGE O. SQUIER,
Lieutenant-Colonel, Signal Corps, United States Volunteers.

ALBERT C. CREHORE,
Assistant Professor of Physics, Dartmouth College.

APPENDIX 13.

[Public Resolution—No. 24.]

JOINT RESOLUTION authorizing the printing of extra copies of the military publications of the War Department.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War be authorized to print, in excess of the one thousand copies authorized by the act of January twelfth, eighteen hundred and ninety-five, such extra number of copies of the military publications of the War Department as may be necessary for the instruction of the National Guard of the various States.

Resolved, That there be printed for immediate distribution by the Secretary of War to the National Guard of the various States the following manuals, regulations, and drill books:

- Three thousand copies of Infantry Drill Regulations.
- One thousand copies of Cavalry Drill Regulations.
- One thousand five hundred copies of Light Artillery Drill Regulations.
- One thousand copies of Manual of Drill for the Hospital Corps.
- Three thousand copies of Manual of Arms, Infantry Drill.
- Three thousand copies of Army Regulations.
- Five hundred copies of Regulations Pertaining to Uniforms.
- Five hundred copies of Military Laws of the United States.
- Five thousand copies of Manual for Army Cooks.
- One thousand copies of Hand Book of Subsistence Stores.
- One thousand copies of Manual for Subsistence Department.
- One thousand copies of Manual for Medical Department.
- One thousand copies of Manual for Quartermaster's Department.
- Five hundred copies of Paymaster's Manual.
- Two hundred copies of Manual of Photography.

Also that there be printed the following:

Three thousand copies of Infantry Drill Regulations, of which one thousand shall be for the use of the Senate and two thousand for the use of the House of Representatives.

Six hundred copies of Cavalry Drill Regulations, of which two hundred shall be for the use of the Senate and four hundred for the use of the House of Representatives.

One thousand five hundred copies of Light Artillery Drill Regulations, of which five hundred shall be for the use of the Senate and one thousand for the use of the House of Representatives.

Two thousand copies of Manual of Arms, Infantry Drill, of which six hundred and fifty shall be for the use of the Senate and one thousand three hundred and fifty for the use of the House of Representatives.

Three thousand copies of Army Regulations, of which one thousand shall be for the use of the Senate and two thousand for the use of the House of Representatives.

Two thousand copies of the Military Laws of the United States, of which six hundred and fifty shall be for the use of the Senate and one thousand three hundred and fifty for the use of the House of Representatives.

Under this resolution the "usual number" not to be printed.

Approved, April 25, 1898.

**REPORT OF THE CHIEF OF THE RECORD AND
PENSION OFFICE.**



REPORT

OF THE

CHIEF OF THE RECORD AND PENSION OFFICE.

RECORD AND PENSION OFFICE,
WAR DEPARTMENT,
October 1, 1898.

SIR: During the fiscal year ended June 30, 1898, as in years past since the organization of the Record and Pension Office, the public business has been promptly dispatched. All the cases received were taken up for action immediately upon receipt, and more than 95 per cent of all cases received were acted on and disposed of within twenty-four hours from the time they reached the office.

The number of cases received and disposed of during the fiscal year ended June 30, 1898, is as follows:

From the Pension Office.....	121, 707
From the Auditor for the War Department.....	28, 002
Remuster cases.....	6, 390
Desertion cases.....	5, 038
All other cases, miscellaneous.....	32, 159
Total	193, 296
On hand June 30, 1898.....	None.

This table shows a large increase in the current business of the office during the last fiscal year as compared with that of the preceding year, being a net increase of 43,489, more than 29 per cent, in the number of cases received and disposed of.

This increase is distributed among all classes of cases with which the office has to deal, the largest increase being in the number of applications for the recognition of commissioned officers under the "remuster" act of February 24, 1897. A very marked increase is, however, noted in the number of calls from the Commissioner of Pensions and the Auditor for the War Department for the military histories of former officers and soldiers for use in the adjudication of pending claims, the increase in the former class over the receipts for the preceding fiscal year being 24,664, more than 25 per cent, and of the latter class 8,465, or more than 43 per cent. The number of desertion cases was increased more than 20 per cent, and the number of miscellaneous cases nearly 19 per cent.

It may be mentioned that the miscellaneous cases referred to in the statistical table are largely of the class embraced in the general correspondence of the office, requiring special investigation or administrative action, and that this general correspondence during the last fiscal year was larger than ever before, 54,496 cases having been of that class.

REMUSTER.

As before remarked, there was a large increase during the last fiscal year in the number of remuster cases received. These cases arise under the act of Congress approved February 24, 1897, "to provide for the relief of certain officers and enlisted men of the volunteer forces" in the war of the rebellion. This act was adopted as a substitute for the similar act of June 3, 1884, and the acts amendatory thereof, which expired by limitation June 3, 1895.

The old law provided for payment for services rendered as commissioned officers by persons who were not recognized by their muster into service as of the grades to which commissioned at or for the time the service was performed, and it also gave to its beneficiaries a pensionable status. The new law not only confers the same material benefits, but it also recognizes the persons to whom it is applied as having been in the United States military service in the grades to which they were commissioned from the dates upon which they entered upon duty, under the conditions specified in the law, or otherwise fulfilled the requirements of the law.

REMOVAL OF CHARGES OF DESERTION.

Applications for removal of the charge of desertion standing against ex-soldiers of the volunteer service are considered by this office under the general provisions of the act of Congress approved March 2, 1889, and the acts amendatory thereof, providing "for the relief of certain volunteer and regular soldiers of the late war and the war with Mexico." This law, which is the only law under which such cases can be considered, was evidently intended for the relief of men who, though guilty of a technical violation of military law, were not willful or intentional deserters.

The 5,038 desertion cases mentioned in the statistical table include only those briefed and recorded as applications for removal of the charge of desertion. They do not include the cases in which the charge of desertion was incidentally encountered and considered under the law without a formal application therefor. During the last fiscal year, as usual, the latter class of cases exceeded the former in number, the incidental cases having numbered 7,897, making a total of 12,935 cases adjudicated during the fiscal year under the provisions of the act of March 2, 1889.

CERTIFICATES OF HONORABLE SERVICE IN THE MILITARY TELEGRAPH CORPS.

By an act approved January 26, 1897, "for the relief of telegraph operators who served in the war of the rebellion," the Secretary of War was "authorized and directed to prepare a roll of all persons who served not less than ninety days in the operation of military telegraph lines during the late civil war, and to issue to each, upon application, unless it appears that his service was not creditably performed, or to the representatives of those who are dead, suitable certificates of honorable service in the military telegraph corps of the Army of the United States, stating the service rendered, the length of such service, and the dates, as near as may be, between which such service was performed." It was provided in the enactment "that this law shall not be construed to entitle the persons herein mentioned to any pay, pension, bounty, or rights not herein specifically provided for."

The Record and Pension Office has charge, under the direction of the Secretary of War, of the preparation of the certificates and of their transmission to the persons entitled thereto, as well as of all correspondence or other details in connection with the subject, including the preparation of the roll provided for in the above-mentioned act. One hundred and twenty-eight certificates were issued up to the end of the fiscal year.

Some questions have arisen as to the class or classes of persons entitled to the certificates provided for by the law, the act, according to its title, being for the relief of "telegraph operators" only, but the act itself specifically provides that certificates of honorable service shall be issued to persons (or to their representatives) who served for the requisite period "in the operation of military telegraph lines," and it has been decided by the Assistant Secretary of War that the act includes not only "telegraph operators," but "all who performed services for the United States in the matter of the operation of military telegraph lines;" and these are deemed to include "all classes of employees of the Government engaged in the matter of maintaining and operating the lines themselves over which the messages were sent, including the operators and other civilian employees who were engaged in sending, receiving, and delivering the telegraphic messages."

It has also been decided by the Assistant Secretary of War that "men in the military service who were detailed for or employed on telegraph duty are entitled to the certificates the same as civilians hired for that duty."

INDEX-RECORD CARD WORK.

The work of reproducing the individual military and medical records of the officers and enlisted men of the volunteer forces by the index-record card system has been minutely described and the object of the work fully explained in prior annual reports, so that a further description of the work or explanation of the object for which it was undertaken does not seem to be necessary. During the last fiscal year, and up to the present date, the work has been prosecuted with all of the clerical force available for the purpose, and has made such progress as the nature of the records would permit. The great mass of the volunteer records of all wars in which the country has been engaged (except those of the recent war with Spain, which have not yet been filed in this office) have been carded, and the work during the past year has been generally confined to those of a miscellaneous character, difficult of reproduction, and the transcription of which is necessarily slow. The records, however, are of great importance, and it is essential that those containing evidence of personal military service shall be included in the general system of index-record cards. This is especially the case with regard to service in the Revolutionary war, the only evidence of service in that war being, in many instances, the personal mention found in the miscellaneous and fragmentary records now in process of examination and reproduction.

The index-record card work for the fiscal year included the preparation of 637,633 military cards (479,811 of this number were a consolidation of 2,898,781 cards made from monthly returns) and 9,067 medical cards, making, with the number prepared in prior years, a total of 40,215,914 of the former and 6,970,663 of the latter class, aggregating 47,186,577 index-record cards prepared up to and including June 30, 1898.

No special effort has been made since the date of the last annual report to obtain from the State authorities or from historical societies the Revolutionary war records in their possession for the purpose of reproduction, the material now in the custody of this office being sufficient to fully occupy the time of the clerks engaged upon the index-record work, but it is hoped that the War Department collection of such records will be largely augmented by the loan of Revolutionary war records not now in its custody, so that the collection may be made as nearly complete as it is possible to make it after the long lapse of time since the Revolutionary armies were disbanded. The records in the possession of some of the States have already been loaned to this Department, and after having been copied have been returned to their former custodians. The Department in all such cases guarantees the prompt and safe return of the original records and pays all charges for their transportation.

PUBLICATION OF RECORDS OF REVOLUTIONARY WAR AND WAR OF 1812.

One object of the transfer of the records of the Revolutionary war and the war of 1812 to the War Department, as announced in the act approved August 18, 1894, providing for their transfer, was that they should be "prepared for publication." As remarked in the last annual report of this office, Congress will doubtless make the necessary appropriation for the publication of these records at the proper time, but it is clearly not advisable to undertake the publication of any portion of them, especially of those relating to the individual histories of officers and enlisted men, until the compilation shall have been completed and every available source of information shall have been exhausted. In view of the difficulties encountered and the consequent slow progress of the work of compilation the date of the contemplated publication is necessarily uncertain and can not even be approximated with any degree of accuracy, but it is evident that the date of publication is still somewhat remote.

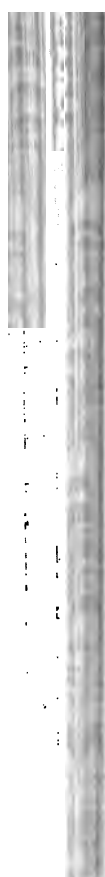
It is due to the employees of the office to state that the prompt and satisfactory dispatch of the business of the office is the natural result of the commendable industry, faithfulness, and zeal which they display in the performance of their respective duties.

Very respectfully,

F. C. AINSWORTH,
Colonel, U. S. Army, Chief of Office.

The SECRETARY OF WAR.

**REPORT OF THE BOARD OF PUBLICATION OF
WAR RECORDS.**



REPORT
OF
BOARD OF PUBLICATION OF WAR RECORDS.

WAR DEPARTMENT, WAR RECORDS OFFICE,
Washington, October 1, 1898.

SIR: The Board of Publication of the Official Records of the War of the Rebellion respectfully submits the following report of its operations during the fiscal year ended June 30, 1898:

Eleven thousand copies each of Vols. LI, Parts I and II; LII, Parts I and II, of Series I, and Vols. I and II of Series II, were received from the Public Printer during the year and distributed. Three books of Series II and one book of Series III were put in type during the same period.

With the publication of Vol. LIII, which was distributed during the months of July and August last, Series I of these records, containing the record of military operations, such as battles, campaigns, sieges, etc., is practically completed, and the public is now in possession of this extensive and valuable series of military papers consisting of 111 books. Serial numbers 112 and 113 have been reserved for such additional historical matter as may be discovered before the publication of the final volumes of the work.

During the fiscal year 108,357 books and 60,000 plates of the Atlas were received. All the plates and 98,357 books came from the Public Printer; 10,000 books were received from other sources. There were distributed and sold 99,727 books and 2,937 parts (or 14,685 plates) of the Atlas. Letters, circulars, postal cards, etc., to the number of 12,052 were prepared and sent by mail in answer to inquiries respecting the sale and distribution of the work, and over 100,000 labels for mailing volumes, etc., were prepared and verified. The sales during the year numbered 1,750 volumes and $284\frac{3}{4}$ parts of the Atlas, with 25 copies of extra plates and indexes, the proceeds, amounting to \$1,441.70, being deposited in the Treasury, as required by law. The sum of \$598 was paid to the Public Printer, upon bills rendered by that officer, for binding the Records and Atlas for subscribers to the work.

On June 30, 1897, there were 57,875 surplus volumes on hand, and this number has been increased during the last twelve months to 67,505. There are also 105,015 plates of the Atlas on hand—equal to about 600 complete copies of that document.

In previous reports of this office attention has been called to the accumulation of these records by reason of the death or removal of individuals or the dissolution and abandonment of libraries and organizations. Under the rules relating to the distribution, volumes due the

classes of beneficiaries named are held, in the case of individuals, until letters of administration are filed, when distribution is continued to the estate. In the case of libraries or organizations this method is not practicable, and the result is an accumulation of books which are not available for distribution without further legislation by Congress. These broken sets are of but little value in their present condition, and it is respectfully suggested that Congress be asked to give you authority to reprint a sufficient number of certain volumes to complete about 1,000 sets. One set could then be supplied to each Senator, Representative, and Delegate of the Fifty-fifth Congress who has not heretofore been furnished with the publication, and two sets could be assigned each member of that Congress for distribution to his constituents. The draft of a bill to accomplish the purpose indicated is given below:

That the Secretary of War is hereby authorized and directed to furnish one complete set of the Official Records of the Union and Confederate Armies to each Senator, Representative, and Delegate of the Fifty-fifth Congress not now entitled by law to receive the same; and in addition thereto he is also authorized and directed to furnish two complete sets of said work to each Senator, Representative, and Delegate of the same Congress, irrespective of his having been already supplied, using for this purpose, as far as possible, those now stored in the War Department and remaining unsold or unclaimed by beneficiaries designated to receive them under the several acts of Congress providing for the distribution and sale of this publication: *Provided*, That the Secretary of War may call upon the Public Printer to print and bind such number of copies of certain volumes or parts as may be found necessary to complete the sets referred to.

A clause in the sundry civil act approved June 4, 1898, provided for supplying each Senator, Representative, and Delegate of the Fifty-fourth Congress, who had not heretofore received the work, with one complete set of these records, and the incomplete sets stored in the Department were made available as far as possible for the purpose. All members entitled under the act mentioned will receive their books, as far as printed, by the time Congress assembles in December.

The financial exhibit for the War Records publication from the beginning of the work is as follows:

Appropriations from commencement of the work in 1874, including	
fiscal year 1897.....	\$2, 494, 708. 50
Expended of above:	
Salaries, contingent, and miscellaneous.....	\$1, 211, 781. 95
Printing and binding	1, 261, 699. 11
Covered into Treasury	21, 227. 44
Total.....	2, 494, 708. 50
Appropriated for the fiscal year 1898:	
Sundry civil act	115, 000. 00
Legislative act.....	15, 380. 00
Deficiency act	15, 000. 00
Total	145, 380. 00
Expended of above:	
Salaries.....	75, 911. 24
Stationery and miscellaneous.....	2, 351. 32
Printing and binding	49, 028. 49
Total.....	127, 291. 05
Balance on hand	18, 068. 95
Outstanding obligations, estimated.....	10, 147. 84

The expenditures for the past nine years have been as shown in the following table:

Year.	For salaries and services.	For printing and binding.	For miscellaneous.
1890	\$32,962.41	\$33,332.81	(a)
1891	68,149.42	186,980.20	\$9,589.33
1892	85,262.52	163,585.04	17,403.97
1893	106,726.69	151,747.23	7,662.18
1894	117,041.12	82,769.24	6,834.06
1895	96,909.78	88,051.08	3,808.02
1896	72,795.56	83,108.14	3,433.92
1897	72,582.48	77,408.09	4,751.97
1898	75,911.24	49,028.49	2,351.32

a Not stated.

The appropriation for the current fiscal year is..... \$94,080.00
Of this sum it is estimated that with present force the expenditures will be:

For services \$30,246.52
Miscellaneous 1,800.00

Total..... 32,046.52

Leaving available for printing and binding 62,033.48

In April last a deficiency appropriation of \$15,000 was asked, to enable the office to complete the publication of Volume LIII of Series I and Volume III of Series II by the close of the fiscal year. Owing to the deficiency bill not passing until after the 30th of June, it was impracticable to fully avail ourselves of the appropriation or completely effect its object, and the greater part will therefore lapse into the Treasury.

At the date of the last annual report there were 4 army officers and 69 civilian employees connected with this office. Owing to the completion of several branches of the work it has been found practicable to reduce these to 1 army officer and 22 civilian employees—our present force—less than one-third of the former number. This reduction has been effected without material decrease in the capacity of the office.

Respectfully submitted.

F. C. AINSWORTH,
Colonel, United States Army,
President of the Board of Publication.

The SECRETARY OF WAR.



**REPORT OF THE BOARD OF COMMISSIONERS OF
THE SOLDIERS' HOME.**



REPORT

OF THE

BOARD OF COMMISSIONERS OF THE SOLDIERS' HOME.

THE SOLDIERS' HOME,
OFFICE OF THE BOARD OF COMMISSIONERS,
Washington, D. C., October 25, 1898.

SIR: Under the requirements of section 1 of the act of Congress approved March 3, 1883, prescribing regulations for the Soldiers' Home in the District of Columbia, I have the honor to submit the following report of the Board of Commissioners of the Soldiers' Home for the year ended September 30, 1898.

The changes in the number of beneficiaries during the year are shown in the following table:

	Regular.	Temporary.	Total.
On the rolls September 30, 1897.....	1,038	103	1,141
Admitted since.....	181	255	436
Readmitted since.....	164		164
Total.....	1,383	358	1,741
Withdrawn from the Home.....	129		129
Dropped, dismissed, etc.....	62	170	232
Died.....	49	5	54
Transferred to permanent roll.....		100	100
Total.....	240	275	515
Leaving on rolls September 30, 1898.....	1,143	83	1,226

This shows an increase of 85 beneficiaries on the rolls since the last annual report.

The number (1,226) on the rolls September 30, 1898, is accounted for as follows:

Present at the Home, 771, an increase of 47 over last year and of 84 over the preceding year; on outdoor relief, 364, an increase of 22; in the Government Hospital for the Insane, 26; on furlough, 65.

The daily average number of inmates during the year was 751. Last year the average was 724, and the preceding year 685.

The total number of deaths was 54, the same as last year. Of these 26 died at the Home, 19 on outdoor relief, 6 on furlough, 2 near the Home, and 1 in the Government Hospital for the Insane.

During the year temporary relief was given to destitute discharged soldiers who were not entitled to admission to the extent of 15,935 meals, of whom 246 were provided with lodgings for a few nights each.

The following statement shows the amounts received and expended during the year and the amount of the permanent fund of the Home deposited in the United States Treasury:

PERMANENT FUND.

Balance in the United States Treasury October 1, 1897.....	\$2, 737, 597. 95
Settlement by Treasury Department for the current year..	\$109, 142. 13
Amount withdrawn for current expenses.....	121, 000. 00
	<u>11, 857. 87</u>
Balance in the United States Treasury September 30, 1898.....	2, 725, 740. 08

ACCOUNT OF THE TREASURER OF THE HOME.

Remaining on hand October 1, 1897	\$8, 264. 14
Received during the year:	
From the permanent fund	121, 000. 00
Interest on the permanent fund	81, 413. 33
Effects of deceased inmates subject to demand of legal heirs	750. 20
Miscellaneous receipts	2, 486. 54
Total receipts.....	<u>213, 914. 21</u>
Disbursements:	
Current expenses	\$168, 996. 46
Permanent improvements	37, 569. 82
Total disbursements.....	<u>206, 566. 28</u>
Balance on hand September 30, 1898	7, 347. 93

The foregoing statement of the permanent fund shows that the settlements made by the Treasury Department in favor of the Home on account of forfeitures of deserters and dishonorably discharged men, deceased soldiers, and court-martial fines was \$25,114.10 less than last year, and that the amount withdrawn from the permanent fund to meet the expenses of the Home was \$11,857.87 greater than the amount placed to its credit. This was not due to excessive expenditures nor to a decrease in the amount which actually accrued to the Home during the year, but simply to the Auditor's office, having been prevented by the pressure of current work, caused by the war, from making the usual settlements of accounts in favor of the Home, and this may continue for some time to come, as it did for several years during and after the war of the rebellion.

The current expenses of the Home, as shown by the treasurer's statement, were \$11,720 greater than last year, which is accounted for by expenses incurred in making much-needed permanent improvements, the installation of an electric plant, repairs to buildings, and purchase of cows for the dairy.

Some of the principal items of the current expenses were:

Subsistence.....	\$34, 843. 87
Expenses of hospital.....	12, 880. 87
Clothing for inmates.....	10, 927. 24
Farm, garden, and ornamentation of grounds.....	19, 107. 51
Extra-duty pay and monthly allowances to nonpensioners	20, 790. 24
Commutation to members residing outside of Home	29, 708. 33

The treasurer's account of funds received for the inmate pensioners shows that he had on hand September 30, 1897, \$43,715.67; that he received during the year \$85,057.47, and paid to pensioners and legal heirs of deceased inmates \$83,053.68, leaving on hand deposited in the United States Treasury, as required by law, \$45,719.46.

The report of the governor of the Home shows that of the 771 resident inmates, 629 are receiving pensions, as follows: One hundred and ninety-five receive from \$6 to \$8 per month; 330, from \$10 to \$16; 76, from \$17 to \$20; 25, from \$22 to \$30; 2, \$50; and 1, \$72 per month.

There are 208 beneficiaries of the Home who served in the war with Mexico, 160 of whom are drawing outdoor relief, and 443 who served in the war of the rebellion, of whom 116 are on outdoor relief, making a total of 651 members who had war (other than Indian war) service.

The attending surgeon reports that 393 patients were treated in hospital; that the daily average was 74.91, and the average age of patients admitted was 53.92; that 2,398 were treated at sick call, and the proportion of deaths to 100 inmates per annum was 3.33. The attending surgeon also reports that 16 patients from the Army, not members of the Home, were temporarily admitted to the hospital for treatment for inguinal hernia.

The sanitary condition of the Home and grounds has been excellent throughout the year, and the water supply and drainage are satisfactory.

The account of the farm and dairy shows that the cultivation of the farm and the reestablishment of a dairy, which was authorized by the board, have proved profitable, both in saving a considerable sum in money and in producing at the Home early and late vegetables and a better quality of milk than that which has been supplied by contract for several years past.

The name of the amusement hall at the Home was changed from Marble Hall to Stanley Hall, in honor of Brig. Gen. D. S. Stanley, the late governor of the Home, who was relieved April 15, 1898.

The act of Congress approved January 19, 1891, requiring the treasurer to keep the current funds on deposit in the United States Treasury, has been complied with, and all supplies for the Home which could be conveniently purchased by contract were so purchased.

The library of the Home contains 6,406 volumes. Nine daily and 16 weekly papers and 17 monthly magazines are provided. The daily average number of inmates who visited the library and reading room was 220, about one-third of the inmates.

The affairs of the Home during the year have been administered by its officers with zeal and wisdom, evidenced by the excellent condition of the buildings and grounds, the kind and just treatment of inmates, and the general care displayed in guarding the best interests of the Home and its beneficiaries. Good, wholesome food, comfortable clothing, clean quarters and beds, and rational amusements have been provided, leaving no reasonable room for complaint.

The following changes occurred in the Board of Commissioners and the officers of the Home during the year:

Brig. Gen. Thomas C. Sullivan, commissary-general of subsistence, retired on November 14, 1897, was succeeded on that date by Brig. Gen. William H. Bell, who was retired January 23, 1898, and was succeeded by Brig. Gen. Samuel T. Cushing. He retired April 21, 1898, was succeeded by Brig. Gen. William H. Nash, who retired May 2d, and was succeeded by Brig. Gen. Charles P. Eagan May 11, 1898, now a member of the board.

Brig. Gen. Samuel Breck, adjutant-general, retired February 25, 1898, and was succeeded by Brig. Gen. H. C. Corbin on that date.

Brig. Gen. David S. Stanley was relieved from duty as governor of the Home April 15, 1898, by Brig. Gen. George D. Ruggles, United States Army, who was selected as his successor.

Bvt. Brig. Gen. R. F. Bernard, deputy governor of the Home, was

detailed July 2, 1898, to perform the duties of secretary and treasurer of the Home, commencing June 30, during the absence of First Lieut. Eugene F. Ladd, secretary and treasurer, absent on duty with troops in the field as major and quartermaster of volunteers.

The accompanying papers are reports of the governor, the attending surgeon, and the treasurer of the Home; a statement of receipts and expenditures; statements of the permanent fund and of the interest account; statements of accounts of the pension money of inmate pensioners and their rates of pension; the debit and credit accounts with the farm and garden, and report of members on outdoor relief, all of which are required to be published for distribution to the Army, as directed by the section and act mentioned in the first paragraph of this report.

Very respectfully,

NELSON A. MILES,
Major-General Commanding the Army,
President Board of Commissioners.

The SECRETARY OF WAR.

REPORT OF THE GOVERNOR OF THE SOLDIERS' HOME

GOVERNOR'S OFFICE, UNITED STATES SOLDIERS' HOME,
Washington, D. C., October 1, 1898.

GENTLEMEN: Under the order of the President, upon the acceptance of the resignation of my predecessor, I assumed the duties of governor of the Soldiers' Home on the 15th of April, 1898.

I forward herewith reports of the surgeon in charge of the hospital, and of the secretary and treasurer of the Home, which present in detail information as to the medical and financial administration of the institution for the past year.

The alterations since last annual report, dated September 30, 1897, are as follows:

Schedule of admissions to the Home.

Permanent beneficiaries, September 30, 1897.....	1,038
Admitted during the year.....	181
Readmitted during the year.....	164
Total.....	1,383
Dropped:	
By withdrawal.....	129
For absence without leave.....	20
Dismissed.....	18
Abandoned the Home.....	3
Dropped by order.....	5
Died.....	49
From outdoor relief.....	16
	240
Permanent beneficiaries, September 30, 1898.....	1,143
Temporary inmates:	
Present September 30, 1897.....	103
Admitted during the year.....	255
Total temporary beneficiaries.....	358
Transferred to permanent rolls.....	100
Dropped.....	164
Dismissed.....	6
Died.....	5
	275
Remaining temporary inmates, including 8 in insane asylum.....	83
Total beneficiaries.....	1,426

Of whom 771 are inmates of the Home, 364 receive outdoor relief, 26 are in insane asylum, and 65 are on furlough. Decrease in the number of temporary inmates for the year, 20; increase in the number of regular inmates for the year, 105. The aggregate is 85 more than was shown last year. Of the 54 deaths reported, 6 died on furlough, 1 in insane asylum, 25 in Home hospital, 19 on outdoor relief, 2 near the Home, and 1 in his quarters at the Home. Daily average number of inmates present during the year, 751. Last year the average was 724, and the preceding year 684½.

Transients.—During the year 15,635 meals have been furnished to destitute discharged soldiers, of whom 246 have been provided with lodgings for a few nights each.

Number of pensioners present at the Home and rate of pension.

Rate per month.	Num-ber.	Rate per month.	Num-ber.	Rate per month.	Num-ber.
\$6	92	\$16	28	\$30	6
\$8	103	\$17	71	\$50	2
\$10	57	\$18	3	\$72	1
\$12	199	\$20	3		
\$12.50	1	\$22	1	Total	629
\$14	43	\$24	17		
\$15	2	\$25	1		

Total present, 1897	566
Total present, 1896	563
Readmitted	164
Temporarily readmitted for medical treatment	13
Denied readmission	4

Number applying for readmission during the year	181
Granted outdoor relief	75
Denied outdoor relief	43

Number applying for outdoor relief	118
Inmates present having service in Mexico	48
Inmates on outdoor relief having service in Mexico	160

Total inmates having service in Mexico	208
Inmates present having service in the war of the rebellion	327
Inmates on outdoor relief having service in war of the rebellion	116

Total inmates having service in war of the rebellion	443
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Nativity of inmates present and absent.

United States	462	Sweden	6
Ireland	344	Russia	5
Germany	191	Holland	5
England	48	Belgium	3
Canada	20	Norway	2
Switzerland	12	Italy	2
Scotland	12	Portugal	1
Austria-Hungary	11	Cuba	7
Denmark	9		
France	8	Total	1, 143

Home library.

Number of volumes on hand	6, 408
Number of volumes added during year	158
Periodicals in reading room:	
Daily papers	9
Weekly papers	16
Magazines, monthly	17
Number of books issued during year	13, 109
Average daily issue	36
Daily average of inmates visiting the library and reading room	220

The farm and dairy have been consolidated and have yielded a profit to the Home, as set forth in the treasurer's report, notwithstanding the severe drought of the past summer, which materially injured the crop.

Improvements during the year.

1. Erection of a hay barrack for storing hay; capacity about 200 tons.
2. Addition to the gardener's cottage.
3. Completion of electric plant.
4. Complete installation of a hot-water system for heating four sets of officers' quarters.
5. Repainting dining hall throughout.
6. Reflooring in King and Scott buildings, excepting the third floor of the latter, which is not yet completed.

The rules of discipline authorized for the Home have been enforced, and have maintained good order. The delinquencies for the last year are set forth in the following table:

Number of delinquencies at the Soldiers' Home, District of Columbia, from October 1, 1897, to September 30, 1898.

Drunkenness	114
Drunk and disorderly	23
Habitually drinking to excess	11
Introducing liquor into the Home	9
Drunkenness on duty	19
Absence without leave	156
Neglect of duty	17
Disobedience of orders	13
Destroying Home property	12
Disorderly conduct	10
Disposing of Home clothing	12
Abusing other inmates	5
Fighting other inmates	5
Disgraceful conduct in public	7
Total number of delinquencies	413
Number of inmates tried once	324
Number tried twice	31
Number tried more than twice	9
Number tried for drunkenness	167
Number tried for insubordination	44
Number tried for other offenses	103
Number not tried	1,414

From this it appears that offenders for drunkenness have numbered 94 per cent of the inmates. It is probable that some and perhaps many of the offenses for absence without leave were the result of drink. Granting that they were all so, the total number of offenders on this account would number 323, or less than 19 per cent of the inmates cared for.

The number of entertainments given in Stanley Hall during the year was 101, at an expense, exclusive of light and heat, of \$739.25.

The band, under its competent leader, has improved constantly during the year, and the Home has now not only an excellent military band but also a fine string orchestra. There is an excellent assortment of music on hand. The good effect of this band upon the discipline and tone of the inmates has been noticeable. The men take pleasure and pride in the daily concerts, and throng the grounds in the vicinity of the band stand every afternoon, excepting Saturdays and Sundays, upon which days the band is not required to play.

Religious services—Roman Catholic, Lutheran, and Episcopal—are held each Sunday in the chapel.

The deputy governor, treasurer, and surgeon have performed their duties most faithfully and acceptably, and I desire to acknowledge the cordial support given by them to the governor in his administration of the Home. The noncommissioned officers, headed by the sergeant-major (who also performs the duties of acting assistant secretary, and whose able service here for the past sixteen years has won the earnest appreciation of successive governors), form an efficient body of men, who faithfully perform their respective duties.

The clerical force is intelligent and faithful.

Very respectfully,

GEO. D. RUGGLES,
Brigadier-General, U. S. A., Governor.

The BOARD OF COMMISSIONERS OF THE SOLDIERS' HOME,
Washington, D. C.

REPORT OF THE ATTENDING SURGEON OF THE SOLDIERS' HOME.

UNITED STATES SOLDIERS' HOME,
Washington, D. C., September 30, 1898.

SIR: I have the honor to submit the following report of the medical department of the Home for the past year ending September 30, 1898:

	1898.	1897.	1896.	1895.
Patients remaining in hospital from last report	79	76	81	78
Patients admitted to hospital during the year	393	357	341	348
Total treated in hospital	472	433	422	426
Returned to the Home, recovered, mostly acute cases	160	133	137	139
Returned to the Home, improved, mostly chronic cases	113	103	94	94
Returned to the Home, unimproved, incurable	88	82	66	79
Sent to the United States Hospital for the Insane	10	3	2	3
Died in hospital	25	30	42	29
Dead when brought to hospital	1	3	5	1
Remaining in hospital at present date	75	79	76	81
Total	472	433	422	426

Ages of patients admitted.

	1898.	1897.	1896.	1895.
Under 20 years	0	1	0	0
From 20 to 29 years	31	27	24	19
From 30 to 39 years	37	45	36	40
From 40 to 49 years	60	67	76	79
From 50 to 59 years	127	92	86	90
From 60 to 69 years	74	78	72	73
From 70 to 79 years	56	41	36	42
From 80 to 89 years	8	6	11	5
Age of the youngest	23	19	20	23
Age of the oldest	87	85	84	85
Average age of patients admitted	53.92	52.27	53.03	52.85
Greatest number of patients at one time	84	83	86	85
Least number of patients at one time	60	61	67	62
Daily average of patients in hospital	74.91	75.91	77.18	76.34

Diseases for which patients were admitted to hospital.

Diseases.	Pa- tients.	Diseases.	Pa- tients.
Abdomen, malignant tumor of	1	Cerebral hemorrhage	1
Abscesses	3	Cerebro-spinal sclerosis	1
Adenitis:		Cholera morbus	3
Cervical	1	Conjunctivitis	2
Inguinal	1	Constipation	9
Alcoholism	40	Contusions	2
Amputations:		Corn, inflamed	1
Arm	1	Crotch paralysis	2
Legs (old)	2	Cyst over elbow, inflamed	1
Thigh	2	Cystitis	3
Thumb	1	Dementia	7
Amputation stump, inflamed	1	Diabetes:	
Anal fistula	1	Insipidus	3
Aneurism of aorta	1	Mellitus	1
Angina pectoris	2	Diarrhea	15
Aphasia	1	Epilepsy	10
Arthritis deformans	1	Epilepsy, Jacksonian	2
Asthma	8	Epithelioma of penis	1
Back, old injury	1	Erysipelas, facial	5
Back and legs, old injury	1	Esophagus, stricture of	1
Balanitis	1	Febriola	2
Biliary colic	1	Foot, numbness of	1
Bladder, irritable	5	Forearm, old injury	1
Bronchitis:		Fractures:	
Acute	2	Femur	1
Chronic	1	Leg	1
Cancer of rectum	1	Patella, ununited	1
Cellulitis of face	1	Gonorrhea	1
Cellulitis, phlegmonous	1	Gunshot wound of thigh, old	1

Diseases for which patients were admitted to hospital—Continued.

Diseases.	Pa- tients.	Diseases.	Pa- tients.
Hand, old injury	2	Pneumonia:	
Headache	2	Acute	1
Heart disease	8	Subacute	1
Hemiplegia	8	Chronic	14
Hernia, inguinal	6	Prostate, enlarged	1
Herpes zoster	1	Pruritus	1
Hydrocele	2	Pulmonary edema	2
Hypochondria	1	Raynaud's disease	1
Incontinence of feces	1	Rectum, stricture of	1
Indigestion	14	Renal colic	1
Ingrowing toe nail	1	Rheumatism:	
Insanity	8	Acute	5
Keratitis	1	Subacute	4
Kidneys, suppuration in	8	Chronic	25
Knee:		Rhus toxicodendron poisoning	1
Anchylolysis of	1	Sacro-iliac disease	1
Old injury of	1	Senile debility	23
Leukemia, splenic-myelogenous	1	Shock, from fall	1
Liver, cirrhosis of	1	Sore feet	1
Locomotor ataxia	11	Sprains:	
Lumbago	4	Ankle	6
Lumbar meningitis, chronic	1	Elbow and knee	1
Lumbo-sacral pain	1	Sycoosis	2
Malaria	12	Synovitis of knee joint, chronic	1
Melancholia	8	Syphilis:	
Morphinism	1	Primary	2
Multiple sclerosis	1	Secondary	1
Nasal catarrh	1	Tertiary	1
Nasal ulceration, chronic	1	Tuberculosis:	
Nephritis, chronic	5	General	2
Neurasthenia	1	Genito-urinary	2
Ophthalmia, chronic	1	Pulmonary	24
Paralysis agitans	1	Typhoid fever	1
Paraphimosis	1	Ulcers	9
Paraplegia	1	Urethra, stricture of	5
Parotic dementia	1	Urine, retention of	5
Perineal abscess	2	Varicocele	1
Periostitis of tibia, acute	2	Varicose veins of legs	3
Peritonitis from perforating ulcer of stomach	1	Vertigo	2
Pharyngitis	2	Vision, defective	1
Pleurisy	1	Wounds	3

This list exhibits only the diseases complained of by the patients at the time of admission to the hospital, and does not include the numerous complications, operations, nor secondary affections arising during the course of treatment. The principal troubles are tuberculosis, chronic rheumatism, heart disease, hernia, catarrh, epilepsy, dyspepsia, and constipation. Many of the men are affected with two or more of these diseases at the same time, and yet may be admitted to hospital for some minor complaint not connected with either.

The 2,398 cases treated at sick call are not included in the above list of diseases.

The following patients, not members of the Home, were temporarily admitted to hospital for treatment during the year:

Name.	Service.	Disease.
Spoerry, Otto	Private, Company A, Sixth Infantry	Inguinal hernia.
Coleman, Raymond	Civilian	Do.
Gallagher, Walter	do	Do.
Langfelder, David	Private, Company G, Seventeenth Infantry	Orethia.
Lambie, James B	Civilian	Inguinal hernia.
Littleton, Thomas	do	Varicocele.
McSweeney, Denis	Corporal, Company H, First Artillery	Inguinal hernia.
Dolan, Charles	Private, Company B, Sixth Infantry	Do.
Haner, George W	Recruit, District of Columbia Volunteers	Do.
Graham, E. L	do	Do.
Sullivan John	do	Do.
Nally, George G	do	Do.
Dietlein, Leonard	do	Varicose veins.
Ferrie, Ernest A	do	Inguinal hernia.
Harvey, P. F	Surgeon, United States Army	Hemorrhoids.
Rose, William	Private, Company L, Forty-seventh New York Volunteers.	Inguinal hernia.

Neurology.

Name.	Age.	Nativity.	Last served in company and regiment—	Died.	Cause of death.
1897.					
Muir, John	65	Scotland.....	E. 9th Inf.	Oct. 3	Intestinal obstruction.
Haerle, Charles	71	Germany	Gen. service ..	Oct. 9	Old age.
Lewis, Coleman	24	United States ..	K. 10th Cav	Oct. 12	Consumption.
Bell, Dick	32	do	B. 7th Cav	Oct. 20	Leukemia.
Pendergast, Thomas	64	England	F. 18th Inf.	Oct. 28	Heart disease.
Baker, William	66	do	G. 7th Inf.	Nov. 2	Erysipelas.
Sinclair, Donald	65	Scotland.....	F. 22d Inf.	Nov. 14	Heart disease.
O'Connor, Michael	71	Ireland	A. 11th Inf.	Nov. 15	Acute mania.
Fitzpatrick, James	60	England	F. 6th Inf.	Nov. 28	Peritonitis.
Packard, Charles E.	53	United States ..	E. 23d Inf.	Dec. 16	Consumption.
Gillespie, Patrick	67	Ireland	L. 1st Cav	Dec. 18	Do.
Viele, Madison	49	United States ..	E. 10th Cav	Dec. 19	Cancer of rectum.
Werner, Charles A.	61	Germany	F. 1st Cav	Dec. 26	Pneumonia.
1898.					
Farr, Albert J.	52	United States ..	A. 8th Inf.	Jan. 21	Shock from fall.
Finn, Malachi	77	Ireland	A. 1st Art.	Jan. 25	Cerebral hemorrhage.
Granger, Charles	57	United States ..	B. 1st Art.	Feb. 9	Aneurism of aorta.
Childs, Charles T.	73	do	Ordnance	Feb. 11	Gangrene of foot.
Mackin, Thomas	69	Ireland	G. 15th Inf.	Feb. 15	Old age.
Weinberger, Christian ..	51	Germany	E. 4th Cav	Feb. 24	Asthma.
Godwin, James	35	England	F. 7th Cav	Mar. 1	Consumption.
McHugh, Andrew	58	Ireland	F. 23d Inf.	Mar. 2	Paralysis.
Barrett, Richard	64	do	A. 1st Cav	Mar. 20	Heart disease.
O'Brien, James	66	do	I. 2d Art.	Apr. 13	Heart disease.
Gary, Bartly R.	23	United States ..	E. 10th Cav	Apr. 21	Consumption.
McCarthy, Dennis	70	Ireland	Ordnance	June 1	Heart disease.
Kearney, William	58	do	H. 37th Inf	Sept. 7	Cirrhosis of liver.

a Dead when brought to hospital.

The daily average of inmates present at the Home was: For 1894, 734; for 1895, 676; for 1896, 688; for 1897, 722; for 1898, 751.

Proportion of deaths to 100 inmates per annum.

Year.	Per cent.	Year.	Per cent.	Year.	Per cent.
1898	3.33	1896	6.10	1894	4.77
1897	4.16	1895	4.29	1893	4.66

Number of prescriptions compounded during the year 7,128
 Applications for treatment at sick call 2,398
 Number of out-door patients connected with the Home treated 310

Annual statement of expenses from treasurer's records.

	1898.	1897.	1896.	1895.
Average number of men, including attendants	107	108	109	108
Subsistence.....	\$7,467.10	\$7,791.83	\$7,893.04	\$7,837.98
Subsistence, inmates Government Insane Asylum	4,916.42	2,987.85	3,539.29	3,379.28
Cost of medicines.....	1,287.05	1,348.91	1,388.75	1,166.41
Attendants	6,693.96	6,506.36	6,417.76	6,435.29
Ice.....	412.79	428.78	437.33	441.11
Fuel.....	1,498.35	112.86	1,073.91	733.97
Gas.....	533.10	761.00	1,062.40	959.00
Laundry.....	100.30	126.95	91.00	218.24
Stationery	49.57	68.51	53.90	48.60
Spectacles	42.00	22.90	31.50	39.75
Trusses.....	12.75	0.00	11.00	9.00
Coffins.....	126.67	309.70	339.98	259.02
Bedding.....	318.61	138.28	210.21	151.13
Repairs.....	1,786.42	2,776.16	629.66	520.80
Forage for ambulance horses.....	208.44	208.44	206.98	204.67
Instruments and appliances	162.94	174.54	158.67	152.55
Books.....	74.32	109.68	96.13	103.55
Furniture	240.64	0.00	238.02	61.00
Miscellaneous.....	56.23	313.20	39.74	75.98
Total	25,982.66	24,185.95	23,919.15	22,797.28
Cost per man per day.....cents..	66.53	61.85	59.96	57.89

Monthly statement of expenses of hospital from October 1, 1897, to September 30, 1898, furnished by the treasurer.

Articles, etc.	Amount.	Articles, etc.	Amount.
<i>October, 1897.</i>		<i>January, 1897—Continued.</i>	
Subsistence.....	\$743.32	Hardware for repairs.....	\$12.06
Ice.....	46.41	Plumbing materials.....	11.16
Gas.....	31.10	Kitchen utensils.....	3.34
Pay, clinical assistant.....	100.00	Walnut file cabinet.....	52.00
Pay, ambulance driver.....	20.00	Articles for police purposes.....	8.43
Forage and hay.....	17.37	Instruments.....	67.11
Horseshoeing.....	3.00	Medical and hospital supplies.....	23.97
Extra washing.....	7.71	Medical books.....	27.77
Double boiler.....	1.20	Spectacles.....	4.50
Mats.....	.15	Truss.....	3.00
Duck for stretcher.....	.80	Pay roll, extra duty.....	446.57
Brick for sidewalk.....	35.00		
Articles for police purposes.....	12.79	Total.....	1,751.73
Medical and hospital supplies.....	18.22		
Stationery and printing.....	4.50		
Pay roll, extra duty.....	433.19		
Total.....	1,474.76		
<i>November, 1897.</i>		<i>February, 1898.</i>	
Subsistence.....	689.84	Subsistence.....	554.64
Ice.....	33.81	Ice.....	29.41
Gas.....	52.20	Gas.....	124.65
Pay, clinical assistant.....	100.00	Pay, clinical assistant.....	100.00
Pay, ambulance driver.....	20.00	Pay, ambulance driver.....	20.00
Forage and hay.....	17.37	Forage and hay.....	17.37
Horseshoeing.....	3.00	Horseshoeing.....	3.00
Extra washing.....	8.13	Extra washing.....	7.29
Kitchen utensils, etc.....	35.57	Kitchen utensils, etc.....	26.13
Repairs to ranges.....	14.22	Repairs to wheel chair.....	4.29
Barrel turpentine.....	18.53	Sash tools, pads.....	1.73
Wire, seed plates.....	1.75	Hardware for repairs.....	20.06
Express charges.....	1.35	Plumbing material.....	4.00
Fire extinguishers, 8.....	120.00	Lumber for bookcases.....	71.70
Articles for police purposes.....	8.05	Repairs to clock.....	2.00
Spectacles.....	7.50	Freight and drayage.....	.99
Truss.....	4.75	Painting hospital interior.....	830.70
Instruments.....	3.10	Articles for police purposes.....	9.57
Medical books.....	1.00	Instruments.....	5.05
Pay roll, extra duty.....	426.09	Truss.....	2.50
Total.....	1,566.26	Medical and hospital supplies.....	1.45
		Lumber for coffins.....	23.05
		Pay roll, extra duty.....	453.63
		Total.....	2,295.84
<i>December, 1897.</i>		<i>March, 1898.</i>	
Subsistence.....	749.40	Subsistence.....	564.97
Ice.....	26.30	Ice.....	20.71
Gas.....	81.00	Gas.....	83.49
Pay, clinical assistant.....	100.00	Pay, clinical assistant.....	100.00
Pay, ambulance driver.....	20.00	Pay, ambulance driver.....	20.00
Forage and hay.....	17.37	Forage and hay.....	17.37
Horseshoeing.....	3.00	Horseshoeing.....	3.00
Extra washing.....	8.54	Extra washing.....	8.29
Napkins, toweling, aprons.....	45.15	Walnut base, glass doors.....	23.00
Door for steward's quarters.....	3.25	Remounting window shades.....	48.45
Freight, hardware.....	11.78	Express charges.....	.75
Articles for police purposes.....	12.44	Articles for police.....	6.63
Medical books.....	14.40	Repairs to gutters, roof.....	12.74
Medical and hospital supplies.....	856.68	Plumbing materials.....	4.55
Stationery and printing.....	15.70	Medical and hospital supplies.....	160.07
Coffin trimmings.....	3.20	Spectacles.....	6.00
Government Asylum for Insane.....	1,094.28	Instruments.....	41.38
Pay roll, extra duty.....	446.80	Stationery and printing.....	8.41
Total.....	3,509.29	Coffin trimmings.....	5.50
		Medical books.....	3.00
		Government Asylum for Insane.....	1,230.71
		Pay roll, extra duty.....	436.99
		Total.....	2,825.63
<i>January, 1898.</i>		<i>April, 1898.</i>	
Subsistence.....	601.62	Subsistence.....	660.84
Ice.....	26.46	Ice.....	22.06
Gas.....	124.65	Gas.....	20.70
Pay, clinical assistant.....	100.00	Pay, clinical assistant.....	100.00
Pay, ambulance driver.....	20.00	Pay, ambulance driver.....	20.00
Forage and hay.....	17.37	Forage and hay.....	17.37
Horseshoeing.....	3.00	Horseshoeing.....	3.00
Extra washing.....	7.32	Extra washing.....	4.81
Barrel kerosene.....	4.51	Express charges.....	.25
Repairs to clocks.....	5.00		
Fire hose and couplings.....	102.00		

Monthly statement of expenses of hospital from October 1, 1897, to September 30, 1898, furnished by the treasurer—Continued.

Articles, etc.	Amount.	Articles, etc.	Amount.
<i>April, 1898—Continued.</i>		<i>July, 1898—Continued.</i>	
Articles for police purposes	\$28.86	Horseshoeing	\$3.00
Hardware for repairs	2.10	Extra washing	9.46
Grates for ranges	4.60	Maps of Porto Rico, Philippines	5.50
Lumber for coffins	30.00	Flooring for repairs	15.00
Medical books	7.35	4 dozen drawer knobs	7.00
Stationery and printing	5.75	Articles for police purposes	13.05
Pay roll, extra duty	454.19	Medical and hospital supplies	42.38
		Medical books	15.00
		Spectacles	7.50
		Stationery and printing	7.00
		Pay roll, extra duty	429.07
Total	1,381.88		
<i>May, 1898.</i>		<i>Total</i>	
Subsistence	710.87		1,466.82
Ice	27.92		
Gas	2.50	<i>August, 1898.</i>	
Pay, clinical assistant	100.00	Subsistence	720.71
Pay, ambulance driver	20.00	Ice	52.24
Forage and hay	17.37	Gas	3.40
Horseshoeing	3.00	Pay, clinical assistant	100.00
Extra washing	8.22	Pay, ambulance driver	20.00
Walnut case of drawers	40.00	Forage and hay	17.37
Freight and drayage	3.69	Horseshoeing	3.00
Articles for police purposes	8.32	Extra washing	12.18
Repairs to ranges	14.70	Kerosene oil, 1 bbl	4.51
Repairs to ambulance	11.32	Kitchen utensils, etc	23.04
Plumbing materials	2.08	Articles for police purposes	12.44
Medical and hospital supplies	391.62	Medical and hospital supplies	34.38
Spectacles	9.00	Lumber, etc., for coffins	52.22
Medical books	1.50	Medical books	2.70
Stationery and printing	3.56	Pay roll, extra duty	440.00
Pay roll, extra duty	432.83		
Total	1,808.50	Total	1,498.89
<i>June, 1898.</i>		<i>September, 1898.</i>	
Subsistence	664.34	Ice	57.24
Ice	33.69	Gas	3.40
Gas	3.30	Pay, clinical assistant	100.00
Pay, clinical assistant	100.00	Pay, ambulance driver	20.00
Pay, ambulance driver	20.00	Forage and hay	17.37
Forage and hay	17.37	Horseshoeing	3.00
Horseshoeing	3.00	Extra washing	10.12
Extra washing	8.41	Range for kitchen	209.00
Express charges	1.35	Coal	1,493.35
Repairs to elevator	17.68	Turpentine, 1 bbl	18.18
Mounting map of Cuba	4.35	Hardware for repairs	3.27
Articles for police purposes	8.28	Kitchen utensils, etc	5.09
Stationery and printing	.75	Cast-iron plate, furnace	5.70
Medical and hospital supplies	36.92	Repairs to ventilators	5.99
Government Asylum for Insane	1,300.00	Plumbing repairs	5.00
Pay roll, extra duty	437.00	Repairs to chairs, elevator	13.55
Total	2,656.44	Articles for police	5.47
		Medical and hospital supplies	26.76
<i>July, 1898.</i>		Spectacles	7.50
Subsistence	726.55	Truss	2.50
Ice	45.54	Stationery	3.90
Gas	2.80	Medical books	1.60
Pay, clinical assistant	100.00	(Government Asylum for Insane)	1,291.43
Pay, ambulance driver	20.00	Pay roll, extra duty	437.00
Forage and hay	17.37		
		Total	3,746.42

The general sanitary condition of the Home and grounds has been excellent throughout the year. The water supply and drainage are satisfactory. There has been no prevalent or epidemic disease among the inmates.

Very respectfully, your obedient servant,

W. H. FORWOOD,
Surgeon, U. S. A., in Charge.

The GOVERNOR OF THE HOME.

Annual report of receipts and expenditures of the United States Soldiers' Home, District of Columbia, from October 1, 1897, to September 30, 1898, by Lieut. Col. R. F. Bernard, United States Army, secretary and treasurer.

Receipts and expenditures.	1897.				1898.								Total.
	October.	Novem-ber.	Decem-ber.	January.	February.	March.	April.	May.	June.	July.	August.	Septem-ber.	
RECEIPTS.													
From the United States Treasurer, upon resolutions of the Board of Commissioners approved by the Secretary of War.....	\$20,503.68	\$20,000.00	\$25,000.00	\$20,481.84	\$16,000.00	\$20,000.00	\$20,245.54		\$20,000.00	\$20,182.27		\$20,000.00	\$121,000.00
From interest on permanent fund.....													\$1,413.33
From effects of deceased soldiers, sub-ject to demands of legal heirs.....	561.81	2.17	17.48	28.78	42.49	32.58	31.44		32.40			1.05	750.20
From miscellaneous sources.....	61.37	69.85	304.59	153.45	73.90	329.76	69.41	\$71.73	250.06	189.23	\$176.51	736.68	2,488.54
Total.....	21,126.86	20,072.02	25,322.07	20,664.07	16,116.39	20,362.34	20,346.39	71.73	30,282.46	20,371.50	176.51	20,737.73	205,680.07
EXPENDITURES.													
Repairs to officers' quarters.....		1.50	71.90	16.54	.34		2.70	12.47	22.15	13.15	2.25	1.15	144.15
Compensation of the governor, deputy governor, treasurer, and clerk to Board of Commissioners.....	372.91	372.91	372.91	372.91	372.91	372.91	372.91	372.91	372.91	297.91	297.91	297.91	4,249.92
Transportation furnished to dis-charged soldiers en route to the Home, to be refunded to Quar-termaster's Department.....			28.45				62.30						
Fuel for the Home.....		2,597.15	735.16	1,654.06	1,216.88	2,031.77	161.46	1,826.89		206.70	104.46		172.88
Expenses of the hospital for medi-cines, medical stores, spectacles, false teeth, material for coffins, &c.	18.22	15.35	874.28	146.35	62.35	220.95	37.35	402.12	38.92	64.38	90.00		339.68
Expenses of the hospital for meals and kitchen purposes and all running expenses, including compensation to inmates on duty and pay of civil-ian employes.....	1,087.97	1,174.14	1,310.18	1,070.97	1,154.55	1,088.46	921.55	1,003.38	973.31	981.05	1,046.11	1,069.20	10,569.76
Refunded to claimants as heirs of de-ceased soldiers.....	284.25	76.39				342.92	30.72	108.96	21.94		34.11	36.86	936.15
Refunded to claimants as heirs of de-ceased inmates.....	130.99	27.20		.35	8.55	18.06	26.50	3,852.22	32.40				244.05
Clothing for inmates of the Home.....		7,047.72	22.50	4.90									10,977.24
Farm and dairy, lawns and grounds, utensils, seeds, guano, manure, cul-tivation of garden, ornamentation of grounds, pay of farm and dairy employees, and pay of other employes.....	1,456.15	1,687.25	1,754.79	1,643.46	1,381.35	1,707.06	2,035.79	1,642.76	1,643.88	1,417.50	1,357.00	1,439.60	19,107.51
Entertainment stores and ice, including special diet for the sick.....	3,651.00	2,762.10	3,731.78	3,828.19	2,503.47	2,520.24	2,782.58	2,494.16	2,737.84	2,649.39	2,773.34	2,190.19	34,842.97

Bedding for inmates, bedsteads, blankets, upholsterers' materials, etc.	610.21	197.50				30.85	241.91		18.14	12.74		1,111.35
Mess and kitchen utensils and all other articles except bedding for the Home.	135.01	173.68	207.77	89.19		121.65	98.94	180.99	96.88	32.00	75.27	1,297.62
Material for general repairs to buildings, repairs of roads and fences, purchase and repairs to harness, vehicles, purchase of mechanical tools.	217.55	342.27	281.91	284.92		229.80	572.80	219.88	464.34	261.53	134.14	3,536.24
Forage and medicines for Home animals, articles used in Home stables.	93.99	95.28	118.32	76.46		107.69	84.66	77.25	120.66	116.35	130.43	1,196.05
Expenses of the library, governor's and treasurer's offices, post-office box rent, stationery, etc., for Commissioners' office, freight, telegrams, amusements, etc.	16.01	45.48	409.22	472.26		294.42	170.18	138.92	134.31	62.55	86.40	1,986.30
Incidental expenses, rental of telephone, hack hire, traveling expenses, professional services, and expenses of the Home chapel.			73.00			73.60	177.95	60.00			85.87	486.95
Religious services.	165.00	165.00	165.00	165.00		165.00	165.00	165.00	171.00	171.00	171.00	1,998.00
Laundry work for the Home.	132.77	182.83	138.48	183.26		181.16	187.18	136.45	116.18	121.82	118.13	1,550.45
Compensation and monthly allowances to inmates, nonpensioners, on duty at the Home; except compensation to inmates employed on roads and grounds and Barnes Hospital.	1,874.48	1,761.02	1,719.88	1,748.77		1,774.17	1,692.59	1,696.18	1,722.35	1,697.64	1,708.01	20,790.24
Commutation to inmates of the Home residing outside.	328.00	336.00	6,524.00	296.00		6,734.00	296.00	6,906.00	297.00	264.00	7,089.18	29,708.33
Gas for the Home.	142.60	201.90	554.50	878.90		228.00	17.70	20.20	13.50	10.90	11.80	1,632.60
Funeral expenses of members of the Home residing outside.			50.00					50.00				150.00
New buildings, Amusement Hall.	3.09	723.51	7.07				40.50					778.67
Permanent improvements: New fences, repairs to bridges, paving sewerage, reflooding first and second stories of Scott Building, building new hay barn, addition to gardener's cottage, carriage house, material and labor resetting boilers in boiler house, etc.	195.00	1,298.92	962.10	1,571.36		1,059.58	1,135.83	965.30	1,976.48	1,270.55	1,438.73	14,267.00
Purchase of animals, cows and horses.		846.00					891.50	285.00				2,412.50
Board and medical treatment of members of the Home in Government Hospital for the Insane.			1,094.28			1,280.71		1,800.00			1,291.43	4,916.43
Construction of an electric plant, material and labor.	896.88	2,298.94	1,903.01	1,431.10		2,744.35	152.86	7.57	38.05	80.84	24.80	16,238.65
Complete installation of a hot-water plant at the officers' quarters.	50.00	2,604.00	678.80	798.00								4,318.30
Compensation to inmates employed on roads and grounds.		206.70	130.90	148.00		140.00	150.70	207.00	210.70	226.00	204.50	1,965.20
Total.	10,181.87	27,514.05	22,465.24	19,976.90		29,968.41	11,869.77	18,044.69	11,374.68	10,031.50	18,893.93	204,566.28

RECAPITULATION.

RECEIPTS.

Balance on hand September 30, 1897.....	\$8,264.14
From the United States Treasurer, upon resolutions of the Board of Commissioners, approved by the Secretary of War.....	121,000.00
From interest on permanent fund.....	81 413.33
From effects of deceased inmates, subject to demand of legal heirs.....	750.29
From miscellaneous sources.....	2,496.54
Total	213,914.21

EXPENDITURES.

Repairs to officers' quarters.....	\$144.15
Compensation of the governor, deputy governor, treasurer, and clerk to Board of Commissioners.....	4,242.92
Transportation furnished to discharged soldiers en route to the Home, to be refunded to Quartermaster's Department.....	329.08
Fuel for the Home.....	10,559.76
Expenses of the hospital for medicines, medical stores, spectacles, false teeth, material for coffins, etc.....	2,007.61
Expenses of the hospital for mess and kitchen purposes and all running expenses, including compensation to inmates and pay of civilian employees.....	12,880.87
Refunded to claimants as heirs of deceased soldiers.....	936.15
Refunded to claimants as heirs of deceased inmates.....	244.65
Clothing for inmates.....	10,927.24
Farm, garden, and dairy utensils, seeds, guano, manure, cultivation of garden, ornamentation of grounds, pay of farm, dairy, garden, and other civilian employees.....	19,107.51
Subsistence stores and ice.....	34,843.87
Bedding for inmates, bedsteads, blankets, upholsterer's materials.....	1,111.25
Mess and kitchen utensils, and all other articles except bedding for the Home.....	1,297.63
Material for general repairs to buildings, repairs of roads and fences, purchase and repairs to harness, vehicles, and purchase of mechanical tools.....	3,536.24
Forage and medicines for Home animals, articles used in stables.....	1,196.05
Expenses of the library, governor's and treasurer's offices, post-office box rent, stationery, etc., for the Commissioner's office, freight, telegrams, and amusements.....	1,986.30
Incidental expenses, rental of telephone, hack hire, traveling expenses, professional services, and expenses of the Home chapel.....	496.95
Religious services.....	1,998.09
Laundry work for the Home.....	1,550.45
Compensation and monthly allowances to inmates, nonpensioners, on duty at the Home, except inmates employed on roads and grounds and Barnes Hospital.....	20,790.24
Commutation to inmates of the Home residing outside.....	29,708.33
Gas for the Home.....	1,622.66
Funeral expenses of members of the Home residing outside.....	150.00
New buildings: Amusement hall, electric plant.....	17,019.32
Permanent improvements: New fences, repairs to bridges, paving, sewerage, etc., reflooring in Scott and King buildings, new hay barn, addition to gardener's cottage, etc.....	14,267.00
Purchase of animals, horses, and cows.....	2,412.50
Compensation to inmates employed on roads and grounds.....	1,965.29
Complete installation of a hot-water system for officers' quarters.....	4,318.30
Board and medical treatment of members of the Home in Government Hospital for the Insane.....	4,916.42
Balance on hand September 30, 1898.....	7,347.93
Total	213,914.21

Comparative statement of money received and disbursed on account of the United States Soldiers' Home for two years, October 1, 1896, to September 30, 1898.

Received from October 1, 1896, to September 30, 1897.....	\$203,110.43
Expended from October 1, 1896, to September 30, 1897.....	194,846.28
Balance on hand September 30, 1897.....	8,264.14
Received from October 1, 1897, to September 30, 1898.....	213,914.21
Expended from October 1, 1897, to September 30, 1898.....	206,566.23
Balance on hand September 30, 1898.....	7,347.93
The expenditures during the year ending September 30, 1897, for new buildings and permanent improvements were.....	31,101.40
The running expenses during the year were.....	163,744.88
The expenditures during the year ending September 30, 1898, for new buildings and permanent improvements were.....	37,569.82
The running expenses during the year were.....	168,996.46
Average cost per man per year.....	173.25
Average cost per man per month.....	14.44
Average number of inmates for the year September 30, 1898.....	768
Average cost of ration per month, including milk and vegetables raised on Home grounds.....	84.57
Average cost of ration per day.....	15

I certify that the foregoing statement is correct.

R. F. BERNARD,
Lieut. Col., United States Army, Secretary and Treasurer.

Statement of the Soldiers' Home permanent fund account from October 1, 1897, to September 30, 1898.

Date.		Partial amounts.	Dr.	Cr.
1897.				
Oct. 1	Balance.....			\$2, 737, 597. 95
Nov. 27	Amount of deposits.....	\$20, 001. 91		
1898.				
May 26	do.....	41, 978. 72		
July 27	do.....	11, 394. 87		
Sept. 27	do.....	35, 766. 63		
1897.				109, 142. 13
Nov. 19	Less amount paid from permanent fund.....	20, 000. 00		
Dec. 14	do.....	25, 000. 00		
1898.				
Feb. 11	do.....	16, 000. 00		
Mar. 11	do.....	20, 000. 00		
June 21	do.....	20, 000. 00		
Sept. 14	do.....	20, 000. 00		
	Balance.....		\$121, 000. 00	
			2, 725, 740. 08	
	Total.....		2, 846, 740. 08	2, 846, 740. 08

Statement of the Soldiers' Home interest account from October 1, 1897, to September 30, 1898.

	Partial amounts.	Dr.	Cr.
Balance Oct. 1, 1897.....			\$20, 503. 68
Interest on balance, \$2,737,597.95, from Oct. 1 to Dec. 31, 1897.....	\$20, 531. 98		
Interest on deposit, Oct. 1 to Dec. 31, 1897.....	57. 53		
			20, 589. 51
Interest on balance, \$2,712 599.86, from Jan. 1 to Mar. 31, 1898.....	20, 344. 40		
			20, 344. 49
Interest on balance, \$2,676,599.86, from Apr. 1 to June 30, 1898.....	20, 074. 50		
Interest on deposit, May 26 to June 30, 1898.....	120. 75		
			20, 195. 25
Interest on balance, \$2,698,578.58, from July 1 to Sept. 30, 1898.....	20, 239. 34		
Interest on deposit, July 27 to Sept. 30, 1898.....	61. 81		
Interest on deposit, Sept. 27 to Sept. 30, 1898.....	11. 76		
			20, 312. 91
Less interest on principal paid—			
Fourth quarter of 1897.....	92. 87		
First quarter of 1898.....	98. 95		
Second quarter of 1898.....	16. 44		
Third quarter of 1898.....	27. 95		
		\$236. 21	
Less interest paid—			
Fourth quarter of 1897.....	20, 503. 68		
First quarter of 1898.....	20, 481. 84		
Second quarter of 1898.....	20, 260. 34		
Third quarter of 1898.....	20, 178. 81		
		81, 424. 67	
Balance.....		20, 284. 96	
Total.....		101, 945. 84	101, 945. 84

The treasurer of the United States Soldiers' Home, Washington, D. C., in account with the inmate pensioners for moneys received under section 4, act approved March 3, 1883, and deposited with the Treasurer of the United States, Washington, D. C.

MONEYS RECEIVED.

1897.		
Oct. 1.	Balance on hand.....	\$43, 715. 87
Oct. 31.	S. L. Willson's checks.....	644. 50
Nov. 30.	S. L. Willson's checks.....	361. 64
Dec. 31.	S. L. Willson's checks.....	20, 221. 46
1898.		
Jan. 31.	S. L. Willson's checks.....	788. 66
Feb. 28.	S. L. Willson's checks.....	651. 21
Mar. 31.	S. L. Willson's checks.....	19, 677. 23
Apr. 30.	S. L. Willson's checks.....	533. 53
May 31.	S. L. Willson's checks.....	316. 37
June 30.	S. L. Willson's checks.....	19, 492. 84
July 31.	S. L. Willson's checks.....	621. 67
Aug. 31.	S. L. Willson's checks.....	486. 40
Sept. 30.	S. L. Willson's checks.....	21, 261. 06
	Total.....	128, 778. 14

MONEYS DISBURSED.

1897.		
Oct. 22.	Amount paid Edward Parsons, pensioner.....	\$9.00
Oct. 25.	Amount paid the estate of Chas. Chambers, deceased.....	290.00
Oct. 31.	Pension pay roll for October, 1897.....	2,775.74
Nov. 4.	Amount paid the estate of James Williams, deceased.....	80.00
Nov. 20.	Pay roll of pensioners to November 30, 1897.....	150.79
Nov. 30.	Pay roll of pensioners to November 30, 1897.....	283.67
Dec. 31.	Pension pay roll for December, 1897.....	16,446.85
1898.		
Jan. 31.	Pension pay roll for January, 1898.....	2,054.06
Feb. 23.	Amount paid the estate of Chas. Haerle, deceased.....	30.00
Feb. 28.	Pension pay roll for February, 1898.....	530.97
Mar. 10.	Amount paid the estate of Patrick Gillespie, deceased.....	30.00
Mar. 30.	Amount paid the estate of Albert J. Farr, deceased.....	82.00
Mar. 31.	Pension pay roll for March, 1898.....	16,434.35
Apr. 12.	Amount paid the estate of Malechi Finn, deceased.....	265.00
Apr. 30.	Pension pay roll for April, 1898.....	2,777.28
May 31.	Pension pay roll for May, 1898.....	1,378.31
June 30.	Pension pay roll for June, 1898.....	17,178.87
July 31.	Pension pay roll for July, 1898.....	1,971.73
Aug. 31.	Pension pay roll for August, 1898.....	2,068.13
Sept. 6.	Amount paid the estate of Chas. C. Thompson, deceased.....	27.00
Sept. 30.	Pension pay roll for September, 1898.....	17,579.00
Sept. 30.	Pension moneys of deceased pensioners transferred to the Home fund.....	500.00
Sept.	Balance in the United States Treasury.....	45,719.06
Total.....		129,772.14

I certify on honor that the above account is correct.

R. F. BERNARD,

Lieut. Col., United States Army, Secretary and Treasurer.

Annual report of the number of pensioners in the United States Soldiers' Home, District of Columbia, rates of pensions, etc., September 30, 1898.

Pensioners drawing per month—		Pensioners drawing per month—	
\$6.....	153	\$18.....	2
\$8.....	147	\$20.....	4
\$10.....	63	\$22.....	2
\$11.25.....	1	\$24.....	22
\$12.....	330	\$25.....	1
\$12.50.....	1	\$30.....	9
\$14.....	47	\$50.....	2
\$15.....	2	\$72.....	1
\$16.....	32		
\$17.....	82	Total.....	991
Pensioners present in the Home:			
Pensioners whose money is drawn by the treasurer.....		639	
Pensioners who have assigned their certificates.....		9	
		639	
Pensioners absent: On outdoor relief.....		272	
Total number of pensioners September 30, 1898.....		991	
Total number of pensioners September 30, 1897.....		936	
Alterations since last report, September 30, 1897:			
New certificates received for inmates.....		37	
Admitted and readmitted.....		239	
		276	
Loss by discharge.....		185	
Loss by death.....		26	
		211	
Net gain during the year.....		65	
Description of certificates:			
Army invalids.....		578	
Army, act of June 27, 1890.....		141	
Mexican war.....		178	
Indian war.....		1	
Navy original.....		2	
Navy, act of June 27, 1890.....		1	
		991	

NOTE.—There are 9 pensioners in the Government Hospital for the Insane, whose money is drawn by the treasurer.

Farm and dairy account United States Soldiers' Home, from October 1, 1897, to September 30, 1898, consolidated.

Dr.		Cr.—Continued.	
Labor, forage, fuel, fertilizers, imple- ments, seeds, repairs, and purchase of animals	\$7, 506. 01	25 bushels onion sets	\$50. 00
Balance to credit of farm and dairy	1, 068. 58	3, 490 bunches parsley	69. 80
Total	8, 574. 59	276½ bushels parsnips	138. 25
Cr.		3 barrels pickles (cucumbers)	15. 00
146 bushels beets	72. 13	789 bushels potatoes	606. 61
17,764 heads cabbage	565. 35	1, 323 bunches radishes	6. 99
64 bushels carrots	35. 75	2, 318 bunches rhubarb	69. 34
270½ dozen ears corn	32. 48	217 bushels salsify	108. 91
29 bushels cucumbers	19. 00	857½ bushels spinach	116. 25
1, 030 pounds horse-radish	80. 90	1, 497 pounds squash	14. 97
181½ bushels kale	63. 44	95 bushels string beans	61. 75
6, 155 heads lettuce	184. 65	252 bushels tomatoes	122. 75
16, 593 bunches onions	126. 50	106½ bushels turnips	21. 25
164½ bushels onions	123. 66	63½ tons hay	631. 00
		14, 505½ gallons milk	2, 175. 88
		Sale of 8 calves	32. 00
		Value of stock on hand	3, 080. 00
		Total	8, 574. 59

Estimate of vegetables in the ground on United States Soldiers' Home farm, September 30, 1898.

50 bushels beets, at 75 cts.	\$37. 50	12, 000 pounds squash, at 1 ct.	\$120. 00
100 bushels carrots, at 50 cts.	50. 00	100 bushels turnips, at 20 cts.	20. 00
400 pounds horse-radish, at 3 cts.	12. 00	Total	389. 50
200 bushels parsnips, at 50 cts.	100. 00		
100 bushels salsify, at 50 cts.	50. 00		

The herd, on September 30, 1898, consisted of 1 bull, 40 cows and 6 calves, also 8 mules and 1 horse. The dairy account was consolidated with farm account, under head of "Farm and dairy," to date from October 1, 1897.

Garden account of United States Soldiers' Home from October 1, 1897, to September 30, 1898, consolidated.

Dr.		Cr.	
Labor, fertilizers, seeds, tools, fuel, and implements	\$5, 679. 07		
33,980 plants, trees, and shrubs raised in garden and greenhouse	2, 006. 50		
By balance to debit of garden, expended in improvement of grounds	3, 672. 57		
Total	5, 679. 07		

NOTE.—This department has the care of the ornamentation of the grounds, lawns, flowers, shrubs, trees, and fruit.

Annual report of members of the United States Soldiers' Home receiving outdoor relief September 30, 1898, rates of relief, pensions, etc.

Number receiving outdoor relief:		Receiving pensions—Continued.	
\$8 per month	310	\$17 per month	11
\$4 per month	2	\$20 per month	1
\$2 per month	52	\$22 per month	1
Total receiving outdoor relief	364	\$24 per month	5
Receiving outdoor relief, September 30, 1897 ..	342	\$30 per month	8
Net gain during the year	22	Total nonpensioners	92
Nonpensioners receiving outdoor relief	92	Total pensioners	272
Receiving pensions:		Total	364
\$6 per month	61	Of this number there are:	
\$8 per month	44	Mexican war survivors	147
\$10 per month	6	Men who have served twenty-five years	
\$11.25 per month	1	or over	48
\$12 per month	131	Of this latter number there are nonpen-	
\$14 per month	4	sioners	12
\$16 per month	4		

Nineteen members on outdoor relief have died since date of last report. Eleven members were dropped from outdoor relief, after June 30, 1898, in compliance with resolutions of the Board of Commissioners dated June 19, 1891, and July 27, 1898.

R. F. BERNARD,
Lieutenant-Colonel, United States Army, Retired, Secretary and Treasurer.
The GOVERNOR OF THE HOME.

REPORT OF THE INSPECTION OF THE SOLDIERS' HOME.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, D. C., January 13, 1899.

SIR: I have the honor to submit the following report of the inspection of the Soldiers' Home, District of Columbia, made December 9 to 16, 1898, as required by the act of March 3, 1898. Lieut. Col. E. A. Garlington, inspector-general, and Maj. Thomas T. Knox, inspector-general, rendered valuable aid in the inspection, and Mr. W. T. Kent, the accountant of the Inspector-General's Department, assisted in the examination of the financial transactions and business methods of the Home.

The buildings, grounds, roads, etc., all seemed in admirable condition, showing much thoughtful attention on the part of those whose duty it is to watch over and care for them. There have been a number of recent changes and improvements, all tending to increase the comfort and convenience of the worthy veterans for whose benefit this great institution was established.

Since the last inspection there has been quite a change in the personnel of the officers of the Home, the present officers being Brig. Gen. George D. Ruggles, governor; Lieut. Col. R. F. Bernard, deputy governor; Capt. Charles W. Taylor, Ninth Cavalry, secretary and treasurer, and Maj. L. A. La Garde, surgeon.

General Ruggles relieved Brig. Gen. D. S. Stanley; Capt. C. W. Taylor relieved Lieut. E. F. Ladd, Ninth Cavalry, and Major La Garde relieved Col. W. H. Forwood, all of whom were active, careful, and zealous officers, under whose fostering care the Home improved and flourished.

MEMBERS.

The average number of officers and men present during the Home year ending September 30, 1898, was reported as 755, or 27 more than for the previous year. The highest number present was 780, on August 25, 1898, and the lowest was 672, on June 16, 1898. The total cared for was 1,741, against 1,501 for the previous year. The average number absent was 401, or 1 less than the average for the preceding year, and these were generally absent on outdoor relief. Some men were borne temporarily for months. There were 13 vacant beds in the barracks and 8 in the hospital at the time of inspection. The beds seemed comfortable, though some mattresses were too short. The age of the members present September 30, 1898, ranged from 24 to 92 years and averaged 55 $\frac{1}{2}$ years, and their length of army service varied from 2 months to 31 years, with an average length of service of 15.2 years.

On the morning the inspection began, December 9, the morning report showed the following:

Present on duty: 1 deputy governor, 1 treasurer, 1 surgeon, 1 hospital steward, 21 sergeants, 5 corporals, 400 privates; temporarily admitted, 66; sick, 77; invalided, 95; extra duty, 143 privates, 1 non-commissioned officer; total, 812. Absent: 1 governor; 379 outdoor relief; on leave, 40 privates; insane asylum, 26. Aggregate present and absent, 1,258.

There were paraded outside the building 574 inmates and 12 civilian members of the band; counted elsewhere about the Home, 52 men. Total number of inmates actually counted, 626.

The behavior of the men appeared to be good, though not so good as for the previous year, as 56 more offenses had been committed than for that year. The total number of offenses committed during the year was 413, by 364 men, of whom 324 offended but once, 31 twice, and 9 more than twice. No members were tried for fence jumping during the year, and of the average present $51\frac{1}{2}$ per cent have never been punished at all.

The books and records of the adjutant's office were examined and found to be up to date and correct, except the record of men receiving outdoor relief footed up 383, while the morning report showed 379.

AMUSEMENTS.

There is no lack of amusements for the old veterans, there being a theater, band, library, billiard, pool, and bagatelle tables, and rooms for smoking, cards, and indoor games and recreations. Variety entertainments at the theater seem to be most liked by the inmates; billiards and cards come next in their favor, and all the means of amusement seem to be appreciated and enjoyed. During the year 101 performances were given at the theater, at a cost of \$739.25. Inmates of the Home are not charged for admission.

The band, which continues to be highly appreciated by the inmates, is composed of 20 men (9 members and 11 civilians), and gave during the year 245 concerts, at a total cost to the Home of \$4,603.34 (including subsistence). That made the average per musician \$230.16, and the average cost per concert \$18.78.

The library was in good condition. At the close of the year it contained 6,407 volumes, an increase of 158 volumes during the year. Thirty-three newspapers and 17 periodicals are subscribed for. The circulation during the year is reported as 12,979, which makes an average of over 17 books read by each man. Fiction is in the greatest demand. The seating capacity of the reading room is 28, and there is an average daily attendance of 215.

BUILDINGS.

The buildings were in a generally good condition.

SHERIDAN BUILDING.

This building has beds for 151 men. Present at inspection, 95 men. The building, in all its parts, was carefully examined and found to be in an excellent state of police and in good repair, except the windows on the west side of the building, which extend to the floor, seem to need weather strips or other means of keeping out the cold. One

heater in the second floor lavatory was leaking. The walls of the basement were dingy and needed calcimining. Hot water is furnished the inmates of this building, once a week only. It would seem more appropriate to have hot water for these old men every day during cold weather, and if the capacity of the boiler is not sufficient it should be increased.

ANDERSON BUILDING.

This building is an old residence, in which are 15 rooms furnishing beds for 43 men. Present at inspection, 38 men. One heater in third story, located in the hall, furnished heat for that floor. Certain rooms in this building, having windows which swing on hinges, are badly ventilated. The floors are old and must soon be replaced. The walls in various places need repapering. A fire in this building would result disastrously to the occupants of the top floor, as the only means of descent is one very narrow pair of stairs located at the extreme end of the building. This building was in a good state of police.

POWER HOUSE.

This house contains a heating and electrical plant. The entire plant seemed to be in excellent condition. The force consists of one chief engineer, one assistant engineer, and four firemen. The chief engineer reported this force as insufficient in extremely cold weather.

SHOPS.

The shops consist of the carpenter shop, blacksmith shop, and paint shop. All were in good condition, and seemed ample for the purposes intended.

HOT HOUSES.

These seem to be in good condition. One florist and one of the assistants was an inmate.

STABLES.

The stables were inspected and found to be in a fair state of police. In stable No. 1 were 7 private horses and 1 public horse; in stable No. 2, 8 public horses and 1 mule; stable No. 3, 2 public horses and 3 private horses. Exhibit P shows only 4 authorized private horses cared for. These stables, the sheds for vehicles, and granary building formed the sides of a small rectangle. Some of them are of wood, and in one of the buildings is stored a large quantity of hay. The nearest fire plug is in front of the main building, and in case of fire at the stables the danger to other buildings would be imminent. The stables are very inconveniently arranged and not at all well adapted to the uses to which they are put. It would be well to construct new stables and storehouses at some more appropriate location.

DISBURSEMENTS.

Since the date of last inspection, November 20, 1897, the office of treasurer of the Home has been filled by three officers as follows: Lieut. E. F. Ladd, Ninth Cavalry, from November 20, 1897, to June 30, 1898; Lieut. Col. R. F. Bernard, U. S. A., from July 1, 1898, to October 31, 1898, and Capt. C. W. Taylor, Ninth Cavalry, from November 1, 1898, to December 8, 1898. Their accounts and disbursements during the

above periods were inspected and the transactions under the separate funds may be summarized as follows:

HOME FUND.

Balance on hand November 20, 1898.....		\$20,460.90
Received from United States Treasury.....	\$192,194.61	
Received from sales.....	1,682.83	
Received from collections.....	774.91	
Received from pension fund.....	590.00	
		<u>195,242.35</u>
Total to be accounted.....		215,703.25
Disbursed as per vouchers:		
By check.....	207,893.79	
By cash.....	2,866.27	
		<u>210,760.06</u>
Balance on hand December 8, 1898.....		4,943.19

PENSION FUND.

Balance on hand November 20, 1897.....		41,415.77
Received from pension agent.....		107,814.06
		<u>149,229.83</u>
Paid to pensioners.....	\$82,367.71	
Transferred to Home fund.....	590.00	
		<u>82,957.71</u>
Balance on hand December 8, 1898.....		66,272.12
Total balance December 8, 1898.....		<u>71,215.31</u>
Distributed as follows:		
United States Treasurer.....	71,045.59	
Assistant treasurer, New York.....	10.38	
Cash on hand.....	159.34	
		<u>71,215.31</u>

For the first five months involved in this inspection the cashbook showed an average of \$392.79 cash on hand at the end of the month, and during this period many checks were drawn for cash to pay the pay rolls when the amount of cash on hand very largely exceeded the amount required for such payments, and in more than one instance it seems that the check so issued, presumably for immediate use, was not paid by the Treasury Department until the following month. The average cash on hand at the end of the succeeding seven months was \$170.79. In the matter of public money the law requires that the disbursing officer receiving it shall deposit it with an authorized depository and draw for the same only as it may be required for payments to be made, and then only in favor of the person to whom payment is made. There would seem to be no question as to the wisdom and prudence of this law. There seems to be a constant balance to the credit of the pension fund varying from \$40,000 to \$45,000. The interest on this, even at 3 per cent, would more than pay the cost to Home incident upon keeping the pension accounts.

The income of the Home is derived from the deduction of 12½ cents per month from each enlisted man in the Regular Army; fines and forfeitures of men by sentence of courts-martial; amounts forfeited by deserters; effects of deceased soldiers unclaimed, and interest at 3 per cent on the permanent fund.

The following statement shows the amounts placed to the credit of

this fund by the Treasury, and the amounts withdrawn therefrom to meet the expenses of the Home during the past four years:

	1895.	1896.	1897.	1898.
Balance October 1	\$2,574,036.79	\$2,690,042.83	\$2,711,124.52	\$2,737,597.95
Credit settlements	188,006.04	145,700.49	134,256.23	109,142.13
	2,762,042.83	2,835,743.32	2,845,380.75	2,846,740.08
Drawn for current expenses	72,000.00	124,618.80	107,782.80	121,000.00
Balance September 30	2,690,042.83	2,711,124.52	2,737,597.95	2,725,740.08

There seems to be quite a falling off in the amount placed to the credit of this fund by the Treasury, but this may, to some extent, be due to the inability of the Auditor to make prompt settlements of the accounts of the Regular Army on account of the increased volume of work coming to his office arising from the late Spanish war.

The following are the amounts relating to the Home fund accounted for by treasurer for the year ending September 30, 1898:

Balance on hand October 1, 1897	\$8,264.14
Received from permanent fund	121,000.00
Received from interest	81,413.33
Received from posthumous sources	750.20
Received from pension fund	590.00

The following are the receipts taken up by the treasurer for the year ending September 30, 1898:

Balance on hand	\$8,264.14
Received from permanent fund	121,000.00
Received from interest fund	81,413.33
Received from posthumous sources	750.20
Received from pension fund	590.00
Received from sales	1,284.20
Received from other sources	612.34

Total..... 213,914.21

The expenditures for the same period were:

Current expenses	\$33,835.52
Subsistence	34,107.30
Clothing	11,624.83
Household	17,874.42
Hospital	18,590.34
Transportation	329.68
Construction	43,817.04
Repairs	7,924.32
Farm	8,754.50
Outdoor relief	29,708.33
	206,566.38

Balance September 30, 1898..... 7,347.98

The average cost per capita for the year is reported as follows:

Subsistence	\$44.53
Clothing	15.18
Household	23.33
Current expenses	44.17
Hospital	24.27
Farm	11.43
Repairs	10.34
Total per capita	173.25

Compared with last year, there is a decrease of the per capita in subsistence, current expenses, hospital, and farm, and an increase in clothing, household, and repairs; and there is a decrease in the total cost of maintenance per man of \$4.05; a normal increase over 1896 of \$1.54. The per capita cost of the National Home for Disabled Volunteer Soldiers for the fiscal year 1898 is \$121.95.

The statement above, as to the per capita of this Home, does not include the payments made to members on outdoor relief. The average number receiving outdoor relief was (nearly) 354 men, or about 30 per cent of the average present and absent, 1,156 in number, and to these members a total of \$29,708.33 was paid during the year, or an average of \$85.98 per man. Including the cost of these beneficiaries, the cost of maintenance per capita would be reduced to \$145.01. The monthly payments to these beneficiaries ranged from \$2 to \$8, and averaged \$6.998 per man, an increase of 23 cents over the average of the preceding year. The number on outdoor relief at the close of the year was 342, exactly the same number reported the year before, and of these 92 were nonpensioners and 250 received pensions ranging in amounts from \$6 to \$16 per month. Among them are 147 Mexican war veterans, and 48 men who served twenty-five years or over.

EMPLOYEES.

The following table has been received, showing the number of employees and the amount paid them during the year:

3 officers.....	\$2, 975. 82
28 noncommissioned officers.....	4, 860. 40
190 members.....	24, 523. 70
60 civilians.....	27, 876. 60
281	60, 236. 52

Compared with the statement furnished for last year there is an increase of six in the number of employees and of but little more than \$800 in the amount paid them.

The ratios of total expenses to amounts paid for services of employees to average membership and average per inmate, for the past seven years, is shown in the following table:

	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Per cent of total expenses to amount paid for services.....	24. 6	23. 7	31	34. 5	26. 3	28. 3	29. 1
Ratio of employees to average membership.....	28. 6	29. 7	37	40. 7	39. 2	37. 8	24. 3
Average per inmate.....	\$64. 87	\$70. 07	\$79. 44	\$81. 83	\$80. 08	\$75. 68	\$52. 12

It will be seen that while the ratio of employees to average membership has decreased, the ratio of total expenses to amount paid for services has increased somewhat. The extremes and averages of the daily compensations are reported as follows:

Daily pay.	Maximum.	Minimum.	Average.
Officers.....	\$3. 82	\$2. 50	\$3. 03
Noncommissioned officers.....	1. 67	. 33½	. 47
Members.....	1. 00	. 16½	. 37
Civilians.....	4. 00	1. 25	1. 32

a Not including surgeon, who receives only his army pay.

A few men perform work of a light character without pay, their work being confined generally to the care of the grounds.

SUPPLIES.

All kinds of stores and property were apparently kept in splendid condition and appeared to receive much care and attention, and are kept as low as prudence could dictate. On September 30, 1898, there were on hand subsistence stores valued at \$146.27; quartermaster stores, \$3,260; and of clothing, \$3,671.04. During the year the only property condemned consisted of 2,195 articles that cost originally \$1,353.80, about \$1.17 per man.

Commissary stores for issue are handled in the same manner heretofore reported. There does not seem to be any good reason why all subsistence stores purchased should not be received at and issued from the same storeroom, or why any distinction should exist as to purchase and issue between articles classed as on the regular ration and extra issues, as the amount of supplies purchased for either class is apparently not based on the number of men present.

The clothing issued to the men appeared generally good, but some of them seemed to need better. The amount purchased during the year was valued at \$10,593.81, or \$9.16 per man, which is not so liberal as the amount for the previous year, about \$12. The Home does not yet maintain a repair shop for mending clothes or shoes, so the men still bear this extra expense.

The dining hall and kitchen were found in their usual good condition, and no complaints were heard concerning either the quantity or quality of the food or its service. Exhibit M' herewith shows the Home mess bill of fare for the week ending November 24, 1898.

The following table shows the amount of food reported as consumed in the dining hall for the months of December, 1897, and June, 1898:

Month.	Amount issued.	Cost.	Average number of men present.	Amount per man.	Cost per pound.	Cost per man.
	<i>Pounds.</i>			<i>Pounds.</i>		
December	108, 112	\$4, 048. 58	760½	142. 17	\$0. 0374	\$5. 31
June.....	62, 859	3, 017. 50	710	116. 70	. 3644	4. 27

For the preparation, cooking, and service of the meals in kitchen and mess hall required 7 for the kitchen and 29 for the mess hall, the same as for last year. To transients not officially connected with the Home 12,935 meals were given during the year, and the recipients were destitute ex-soldiers. The per cent of crockery reported broken was: Bowls, 8; dinner plates, 8; soup plates, 24; vegetable dishes, 3. The garbage is given to inmates for removing it, except the bones and grease, which are sold to dealers.

LAUNDRY.

The Home has not yet established a laundry of its own, so the washing is still done by contract, and there has been quite a reduction in prices since last year. During the month of September 8,414 pieces of regular and 1,012 pieces of extra washing were done; and during this time 40 per cent of the members washed their own shirts, 53 per cent their own drawers, and 90 per cent their own socks. Exhibit F shows

the contract prices for laundry in force during the year, and the following table shows the reduction in this item of expense for a series of years:

Contract prices for laundry work.

Year ending—	Amount per man per month.	Year ending—	Amount per man per month.
June 30, 1893	\$1.00	June 30, 1897	\$0.20
June 30, 1894 .....	.50	June 30, 1898 .....	.16
June 30, 1895 .....	.245	June 30, 1899 .....	.14
June 30, 1896 .....	.20		

WATER SUPPLY.

The water supply seems to be abundant and good, and in every way adequate and satisfactory. The facilities for protection against fire seem good, and great care appears to be taken to prevent fires. There were none during the past year.

FARM AND DAIRY.

The farm and dairy accounts were consolidated to date from October 1, 1897.

About 50 acres are under cultivation. The force consists of 1 chief farmer, 10 laborers, and 2 herdsmen, 1 of whom is an inmate. The herd consists of 41 milch cows, 3 calves, 1 heifer, and 1 bull. They all seemed to be in good condition. There are 7 mules, 1 of which is unserviceable; 1 horse serviceable and 1 horse unserviceable and not on the papers of the Home. In the stable are 4 cows said to belong to the officers of the Home. The buildings pertaining to the stable are in good condition and were being painted at the time of the inspection. The farmhouse is in fair condition. It would be desirable to have it connected with the sewerage system. A building near the stable now occupied by the upholsterer is in need of renovation and repair.

Exhibit I shows that the farm produced \$3,318.73 worth of vegetables, and Exhibit K shows that of these \$2,388.35 worth were furnished to the Home and hospital mess, leaving \$930.83 worth that went elsewhere. The total product of the farm and dairy was: Vegetables expended, \$3,318.73; vegetables in the ground, \$389.50; total vegetables, \$3,708.23; milk, \$2,175.86; total for farm and dairy, \$5,884.09. In addition to this \$2,144.23 worth of vegetables were purchased for the mess table, and although the farm apparently did well it fell short of the demands of the Home.

The garden, which cares for plants, trees, shrubs, etc., raised in the greenhouse and elsewhere for the ornamentation of the grounds and lawn, expended during the year the sum of \$5,679.07 for labor, fuel, seeds, fertilizers, tools, etc., and is credited with \$2,006.50 for 33,980 plants, trees, and shrubs produced. It seems that no fruits are raised.

The Home reservation contains 502 acres. Of this, 50 are under cultivation, 250 in pasture and hay, 12 in garden, 126 in woodland, 42 in the lawn, and the buildings occupy 22.

HOSPITAL, ETC.

The hospital when inspected was in splendid condition, everything appearing satisfactory and denoting great and scrupulous care on the

part of those having charge of it. There are 85 beds in the hospital, and 74 of them were occupied, as against 79 for the preceding year. The average daily number of sick during the year was 74.91 in hospital and 6.57 at sick call, a slight decrease from the average for the preceding year. The following are the principal diseases and the percentages of each:

Chronic: Rheumatism, 11.69; senile debility, 6.97; tuberculosis, 6.01; pneumonia, 3.17; epilepsy, 2.54; locomotor ataxia, 2.33; bronchial catarrh, 2.12; asthma, heart disease and hemiplegia, 1.67 each.

Acute: Alcoholism, 8.47; diarrhea, 3.18; indigestion, 2.96; malarial fever, 2.54; constipation, 1.90; nephritis, 1.06; cholera morbus, 0.63.

Surgical: Ulcers, 1.90; fractures and sprains, 1.48 each; hernia, 1.27; abscess and wounds, 0.63 each.

The principal disease of local origin was malaria, of which there were 12 cases, as against 18 for the previous year and 26 for the year before that. There were no epidemics or sporadic cases of infectious or contagious diseases during the year. The total number of cases treated for the year in and out of the hospital was 2,870 (as against 2,724 for the previous year), with an average of 58.14 days in hospital and 1 day at sick call, as against 64 and 1 for last year. The total number of members admitted during the year was 393; discharged as cured, 160. Fifty-four members died during the year, being exactly the same number that died during the previous year, showing a death rate of 46.71 per thousand, as against 47.79 for the previous year. During the year 31 members and 6 ex-members were buried in the Home cemetery. The cost of each funeral was \$6.42; the coffins, made at the Home shops, costing \$6.12 of this amount. The members are buried in the Home uniforms. An allowance of \$25 each is made for the funeral expenses of the members dying outside of the Home, and during the year \$160 was expended for this purpose, as against \$350 for last year.

Insane patients are cared for in two small barred isolated rooms when necessary, otherwise in the general wards, or are sent to the Government Hospital for the Insane. During the year 25 members showed indications of disordered minds, and they are classified as follows: Permanently insane, 21; temporarily, 4. Eight of these men are violent, and one is classed as a "crank."

There are also 4 members totally blind, and 10 with impaired vision; all of whom are read to daily, and they are well cared for.

The total cost of extra diet for the year was \$2,835.08, as against \$3,126.91 for the preceding year. The hospital employees consist of 29 members and 3 civilians, whose pay for the year amounted to \$6,693.96, an average compensation of \$209.18 per man, as against \$203.34 for the previous year.

The expense for medicines and druggists' supplies of all kinds during the year was \$1,287.05, as against \$1,348.91 for the previous year, or a per capita per member of \$1.11. Last year it was \$1.85. The medicines most used during the year were codliver oil, 6 gallons; iodide of potash, 35 pounds; rochelle salts, 20 pounds; extract cascara sagrada, 12 pounds; compound licorice powder, 10 pounds; epsom salts, 8 pounds; subnitrate of bismuth, 4 pounds; sulphate of quinine, 35 ounces; sulfonal, 10 ounces; cathartic pills, 15,000.

Attention is invited to the accompanying exhibits for detailed information on various matters.

Respectfully submitted.

J. C. BRECKINRIDGE,
Inspector-General.

The SECRETARY OF WAR.

LIST OF EXHIBITS.

- A.—Field return of inmates, November 30, 1898.
 B.—Recapitulation of expenses, October 1, 1897, to September 30, 1898.
 C.—Amount paid to civil employees during September, 1898.
 D.—1. Statement relative to members on outdoor relief.
 2. Annual report of members on outdoor relief September 30, 1898; rates of relief, pensions, etc.
 E.—Statement showing number of inmates present November 30, 1898; length of service, age, pensions, etc.
 F.—List of contracts for supplies and services, September 30, 1898.
 G.—Amount expended on officers' quarters and permanent buildings, from October 1, 1897, to September 30, 1898.
 H.—Garden account from October 1, 1897, to September 30, 1898.
 I.—Farm and dairy account from October 1, 1897, to September 30, 1898.
 K.—Vegetables furnished Home and hospital mess from farm for year ending September 30, 1898.
 L.—Vegetables purchased in addition to those furnished by farm for year ending September 30, 1898.
 M.—1. Home mess bill of fare for week ending November 24, 1898.
 2. Subsistence stores consumed in the month of December, 1897.
 3. Subsistence stores consumed in the month of June, 1898.
 N.—1. Clothing washed during the month of September, 1898.
 2. Extra washing done during the month of September, 1898.
 3. Regular and extra washing done from October 1, 1897, to September 30, 1898.
 O.—List of crockery in daily use during year ending September 30, 1898, with per cent of breakage.
 P.—Number of horses and mules owned and employed September 30, 1898.
 Q.—Hospital diet, special and general.
 R.—List of medicines on hand March 31, 1898, and six months' supply received April 2, 1898.

EXHIBIT A.—Field return of the inmates November 30, 1898.

Present for duty:		Present, distributed among the buildings as follows:	
Governor	1	Scott Building <i>a</i>	246
Deputy governor	1	Sherman Building <i>b</i>	128
Secretary and treasurer	1	Sheridan Building <i>c</i>	151
Hospital steward	1	King Building <i>d</i>	101
Sergeants	21	Anderson Building <i>e</i>	35
Corporals	5	North gatehouse	2
Privates	897	Eagle gatehouse	2
		West gatehouse	1
Sick:		South gatehouse	1
Privates	76	Southeast gatehouse	1
		Whitney avenue gatehouse	1
Extra duty:		Stanley Hall	9
Sergeants	1	Married men at old farmhouse	2
Privates	142	House in stable yard for guard	3
Temporarily admitted	75	Married men at dairy	9
Invalided privates	95	Married men who sleep outside	9
		Hospital	108
Total	813		
Aggregate	816	Total inmates present	815
Absent:		On outdoor relief (beneficiaries)	368
On special duty (surgeon)	1	In insane asylum, inmates	26
		On furlough, inmates	40
On outdoor relief	368		
Insane asylum	26	Total	434
With leave, privates	40		
Total	434	Total inmates present and absent:	
Aggregate	435	Permanent inmates present and absent	794
		Temporary inmates present and absent	85
Present and absent:		Beneficiaries receiving outdoor relief	368
Total	1,247		
Aggregate	1,251	Total	1,247

a With bedroom space of 271,990 cubic feet; 1,105.65 cubic feet per man.

b With bedroom space of 214,684 cubic feet; 1,555.5 cubic feet per man.

c With bedroom space of 152,058 cubic feet; 1,007 cubic feet per man.

d With bedroom space of 106,594 cubic feet; 1,055.5 cubic feet per man.

e With bedroom space of 55,874 cubic feet; 1,596.8 cubic feet per man.

ED. D. RUGGLES,
 Brigadier-General, Governor.

EXHIBIT B.—*Recapitulation of expenditures from October 1, 1897, to September 30, 1898.*

Repairs to officers' quarters	\$144.15
Compensation of the governor, deputy governor, treasurer, and clerk to the board of commissioners	4,240.10
Transportation furnished to discharged soldiers en route to the Home, to be refunded to Quartermaster's Department	320.00
Fuel for the Home	10,550.75
Expenses of the hospital for medicines, medical stores, spectacles, false teeth, material for coffins, etc.	2,007.61
Expenses of the hospital for mess and kitchen purposes and all running expenses, including compensation to inmates and pay of civilian employees	12,890.87
Refunded to claimants as heirs of deceased soldiers	930.15
Refunded to claimants as heirs of deceased inmates	244.45
Clothing for inmates	10,927.24
Farm, garden, and dairy utensils, seeds, guano, manure, cultivation of garden, ornamentation of grounds, pay of farm, dairy, and garden, other civilian employees	19,107.51
Subsistence stores and ice	34,843.87
Bedding for inmates, bedsteads, blankets, upholstery materials	1,111.35
Mess and kitchen utensils and all other articles, except bedding for the Home	1,297.03
Material for general repairs to buildings, repair of roads and fences, purchase and repairs to harness, vehicles, and purchase of mechanical tools	2,530.24
Forage and medicines for Home animals, articles used in stables	1,198.05
Expenses of the library, governor's and treasurer's offices, post-office box rent, stationery, etc., for the commissioners' office, freight, telegrams, etc.	1,906.30
Incidental expenses, rental of telephone, hack hire, traveling expenses, professional services, and expenses of the Home chapel	498.35
Religious services	1,903.00
Laundry work for the Home	1,500.45
Compensation and monthly allowances to inmates nonpensioners on duty at the Home except inmates employed on roads and grounds and Barnes hospital	20,790.24
Commutation to inmates of the Home residing outside	20,700.33
Gas for the Home	1,022.00
Funeral expenses of members of the Home residing outside	150.00
New buildings: Amusement hall, electric plant	17,012.22
Complete installation of a hot-water system at the officers' quarters	4,318.30
Permanent improvements: New fences, repairs to bridges, paving, sewerage, etc., reflooring in Scott Building, new hay barn, new addition to gardener's cottage, etc.	14,287.00
Board and medical treatment of members of the Home in Government Hospital for the Insane	4,916.43
Purchase of animals	2,412.50
Compensation to inmates employed on roads	1,965.20
Total expenditures	206,504.28

CHAS. W. TAYLOR,
Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT C.—*Amount paid to civil employees during September, 1898.*

One clerk to board of commissioners	\$100.00
One clerk to secretary and treasurer	100.00
J. B. Nichols, clinical assistant to attending surgeon	100.00
Rev. J. A. Cunnane, religious services and services of choir	65.00
Rev. G. H. Johnston, religious services	50.00
Rev. Gustav Facius, religious services	25.00
Lula Facius, services as organist and in choir	25.00
Emily Grant, hospital matron	10.00
Mary V. Delaplane, services in choir	6.00
One farm and dairy overseer	50.00
Eleven farm and dairy laborers	290.00
One gardener and florist	50.00
Ten laborers on lawns and grounds	265.00
One bricklayer and mason	75.00
One carpenter	100.00
Five laborers, grading at First street entrance to grounds	177.50
One plumber	85.00
One blacksmith	75.00
One chief engineer, boiler house	75.00
One assistant engineer	60.00
Four firemen, at \$33 each per month	132.00
One engineer, pump house	50.00
One chief cook	50.00
One assistant cook	25.00
One chief baker	50.00
One assistant baker	45.00
One tinner	75.00
One ambulance driver	20.00
Total	2,220.50

CHAS. W. TAYLOR,
Captain, Ninth Cavalry, Secretary and Treasurer.

EXHIBIT D¹.—Statement relative to members on outdoor relief from October 1, 1897, to September 30, 1898.

Average number for one year from October 1, 1897, to September 30, 1898.....	353.75
Total amount paid for outdoor relief during the year ending September 30, 1898.....	29,708.33
Average amount paid per man for one year.....	83.9611
Average amount paid per man for one month.....	6.9984
Highest amount paid per man for one month.....	8.00
Lowest amount paid per man for one month.....	2.00

CHAS. W. TAYLOR,
Captain, Ninth Cavalry, Secretary and Treasurer.

EXHIBIT D².—Annual report of members receiving outdoor relief, September 30, 1898, rates of relief, pensions, etc.

Number receiving outdoor relief:		Receiving pensions—Continued.	
\$8 per month.....	310	\$16 per month.....	4
\$4 per month.....	2	\$17 per month.....	11
\$2 per month.....	52	\$20 per month.....	1
Total.....	364	\$22 per month.....	1
Receiving outdoor relief, September 30, 1897.....	342	\$24 per month.....	5
Net gain during the year.....	22	\$30 per month.....	3
Nonpensioners receiving outdoor relief.....	92	Total.....	272
Receiving pensions:		Total nonpensioners.....	92
\$6 per month.....	61	Total.....	364
\$8 per month.....	44	Of this number there are Mexican war sur-	
\$10 per month.....	6	vivors.....	147
\$11.25 per month.....	1	Men who have served twenty-five years or	
\$12 per month.....	131	over.....	48
\$14 per month.....	4	Of this latter number there are nonpensioners.....	12

Nineteen members on outdoor relief have died since date of last report.
Eleven members were dropped from outdoor relief after June 30, 1898, in compliance with resolutions of the board of commissioners dated July 19, 1891, and July 27, 1898.

CHAS. W. TAYLOR,
Captain, Ninth Cavalry, Secretary and Treasurer.

EXHIBIT E.—Statement showing number of inmates present September 30, 1898, length of service, their ages, number of pensioners, and rates of pension.**NUMBER OF INMATES AND LENGTH OF SERVICE.**

Service.	Num- ber of men.	Service.	Num- ber of men.	Service.	Num- ber of men.
2 months.....	1	6 years.....	17	20 years.....	92
4 months.....	1	7 years.....	14	21 years.....	76
5 months.....	1	8 years.....	20	22 years.....	43
6 months.....	1	9 years.....	14	23 years.....	38
7 months.....	3	10 years.....	9	24 years.....	21
8 months.....	3	11 years.....	14	25 years.....	33
9 months.....	2	12 years.....	17	26 years.....	18
10 months.....	1	13 years.....	21	27 years.....	13
11 months.....	4	14 years.....	16	28 years.....	6
1 year.....	19	15 years.....	19	29 years.....	2
2 years.....	27	16 years.....	16	30 years.....	1
3 years.....	44	17 years.....	9	31 years.....	1
4 years.....	17	18 years.....	27	Total.....	751
5 years.....	36	19 years.....	34		

Average service, 15.2 years.

EXHIBIT E.—Statement showing number of inmates present, etc.—Continued.

NUMBER AND AGE OF INMATES.

Age.	Number of men.	Age.	Number of men.	Age.	Number of men.
24 years.....	3	46 years.....	9	68 years.....	16
25 years.....	2	47 years.....	10	69 years.....	12
26 years.....	4	48 years.....	13	70 years.....	11
27 years.....	3	49 years.....	21	71 years.....	9
28 years.....	2	50 years.....	36	72 years.....	16
29 years.....	6	51 years.....	41	73 years.....	11
30 years.....	5	52 years.....	37	74 years.....	4
31 years.....	3	53 years.....	30	75 years.....	6
32 years.....	5	54 years.....	35	76 years.....	6
33 years.....	7	55 years.....	35	77 years.....	2
34 years.....	3	56 years.....	28	78 years.....	5
35 years.....	3	57 years.....	23	79 years.....	3
36 years.....	6	58 years.....	33	80 years.....	3
37 years.....	8	59 years.....	24	81 years.....	2
38 years.....	2	60 years.....	26	84 years.....	1
39 years.....	5	61 years.....	27	85 years.....	1
40 years.....	5	62 years.....	28	90 years.....	1
41 years.....	6	63 years.....	20	92 years.....	1
42 years.....	9	64 years.....	13		
43 years.....	8	65 years.....	13		
44 years.....	6	66 years.....	16		
45 years.....	8	67 years.....	17		
				Total.....	724

Average age of inmates present September 30, 1896, 55½ years.

PENSIONERS.

Rate.	Number of men.	Rate.	Number of men.	Rate.	Number of men.
\$6 per month.....	153	\$15 per month.....	2	\$25 per month.....	1
\$8 per month.....	147	\$16 per month.....	32	\$30 per month.....	9
\$10 per month.....	63	\$17 per month.....	82	\$50 per month.....	2
\$11.25 per month.....	1	\$18 per month.....	2	\$72 per month.....	1
\$12 per month.....	330	\$20 per month.....	4		
\$12.50 per month.....	1	\$23 per month.....	2		
\$14 per month.....	47	\$24 per month.....	23		
				Total.....	201

Average monthly pension, \$11.61.

GEO. D. RUGGLES,
Brigadier-General, Governor.

EXHIBIT F.—List of contracts for supplies and services, September 30, 1896.

Telephone service, Chesapeake and Potomac Telephone Company, metallic circuit, per annum.....	\$30.00
Fuel:	
White-ash furnace coal..... per ton..	4.55
White-ash stove coal..... do.....	5.05
Cumberland coal..... do.....	2.35
Forage:	
Oats..... per hundred weight..	1.14
Shelled corn..... do.....	.82½
Bran..... do.....	.74
Corn meal..... do.....	.67½
Flour..... per barrel.....	5.37
Laundry work:	
Per man (the laundered articles for each man per week consist of 1 sheet, 1 pillowcase, and 1 complete change of underclothing per man per month).....	.14
Billiard-table covers..... each.....	.10
Blankets..... do.....	.08
Trousers..... do.....	.08
Summer coats..... do.....	.05
Aprons..... do.....	.01
Men's white caps..... do.....	.05
Table covers..... do.....	.05
Bedspreads..... do.....	.05
Sheets..... do.....	.02½
Pillowcases..... do.....	.02½
Roller towels..... per hundred.....	.75

Laundry work—Continued.

Hand towels.....	per hundred.....	\$0.50
Napkins.....	do.....	.50
Mattress covers.....	each.....	.05
Ice.....	per hundredweight.....	.23
Oleomargarine.....	per pound.....	.12

Groceries:

Smoked pork shoulders.....	per pound.....	.06
Navy beans.....	do.....	.02
"A" sugar.....	do.....	.0533
"C" sugar.....	do.....	.0470
Granulated sugar.....	do.....	.0545
Powdered sugar.....	do.....	.0570
Macaroni.....	do.....	.05
Canned corn.....	per dozen cans.....	.65
Sapallo.....	per dozen.....	.73
Pearline.....	per case.....	3.48
Smith's noodles.....	per pound.....	.13
Apple butter.....	do.....	.02
Boneless codfish.....	do.....	.04
Laundry soap.....	do.....	.031
Black pepper (whole berry) screened.....	do.....	.10
White pepper (ground).....	do.....	.18
Red pepper, ground.....	do.....	.17
Pure sugar sirup.....	per gallon.....	.19
New Orleans molasses.....	do.....	.22
Canned peaches.....	per dozen cans.....	1.25
Cornstarch.....	per pound.....	.04
Tapioca.....	do.....	.04
Sal soda.....	do.....	.00
Fresh lemons.....	per dozen.....	.15
Oyster crackers.....	per pound.....	.05
Soda crackers.....	do.....	.05
Evaporated pears.....	do.....	.08
Evaporated apricots.....	do.....	.09
Bacon, breast.....	do.....	.07
Dry salt bellies.....	do.....	.0590
Full-head rice.....	do.....	.05
Pure cider vinegar.....	per gallon.....	.11
Colman's mustard.....	per pound.....	.25
Quaker oats.....	do.....	.03
Farina.....	do.....	.06
Dried lima beans.....	do.....	.03
Rye flour.....	do.....	.02
Candles.....	do.....	.07
Hominy.....	do.....	.011
Barley.....	do.....	.03
Corn meal.....	do.....	.01
Buckwheat.....	do.....	.06
Lard.....	do.....	.08
Dried currants.....	do.....	.06
Evaporated apples.....	do.....	.05
Evaporated peaches.....	do.....	.09
Evaporated prunes.....	do.....	.05
Canned tomatoes.....	per dozen in 8-pound cans.....	1.90
Canned string beans.....	per dozen cans.....	.47
Mackerel.....	per barrel.....	17.29
Roasted rio coffee.....	per pound.....	.10
Table salt.....	do.....	.00
Green tea.....	do.....	.28
Black tea.....	do.....	.28
Full-cream cheese.....	do.....	.09
Graham flour.....	per barrel.....	5.25
Sauerkraut.....	do.....	5.00
Do.....	per gallon.....	.20
Cucumber pickles.....	per barrel.....	6.75
Do.....	per gallon.....	.30
Cracked wheat.....	per pound.....	.0437
Oat meal.....	per package.....	.04
Flavoring extract, lemon.....	per dozen.....	1.50
Flavoring extract, vanilla.....	do.....	1.75
Canned peas.....	per dozen cans.....	.70
Canned lima beans.....	do.....	.70
Royal baking powder.....	per pound.....	.35
Pail jellies.....	do.....	.02
Preserved fruits, all kinds.....	do.....	.04
Oat meal, loose.....	do.....	.02
Beef, etc.:		
Fresh beef.....	do.....	.0998
Corned beef.....	do.....	.04
Fresh mutton.....	do.....	.0798
Veal.....	do.....	.0998
Fresh pork.....	do.....	.08
Hams.....	do.....	.08
Sausages:		
Head cheese.....	per pound.....	.06
Bologna.....	do.....	.07
Frankfurter.....	do.....	.07
Fresh pork sausages.....	do.....	.09

Clothings:

Black felt hats.....	each..	94.6
Dark-blue sack coats.....	do....	1.5
Dark-blue vests.....	do....	1.3
Sky-blue trousers.....	do....	2.6
Flannel shirts.....	do....	.94
Canton-flannel drawers.....	do....	.27
Cotton sheets.....	do....	.33
Cotton pillowcases.....	do....	.11
Bedspreads.....	do....	1.56
Hand towels.....	per dozen..	1.92
Roller towels.....	each..	.56
Feather pillows.....	do....	1.89
Woolen stockings.....	per dozen pairs..	1.73
Gray army blankets.....	each..	1.44

CHAS. W. TAYLOR,

Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT G.—Amount expended on officers' quarters and permanent buildings from October 1, 1897, to September 30, 1898.

House No. 1, quarters of the governor.....	\$34.08
House No. 2, quarters of the deputy governor.....	7.00
House No. 4, quarters of the treasurer.....	11.35
House No. 4, quarters of the surgeon.....	91.00
Total.....	144.13
On account of repairs and construction of permanent buildings:	
Hot water heating plant for four sets of officers' quarters.....	4,313.30
Electric plant—final payment made, and additional repairs thereto.....	16,329.65
Home conservatory—purchase of glass, paints, and oils, boiler for increasing heating capacity, brick, lumber, plumbing, etc.....	1,111.34
Roads and grounds—repairs to bridges, lime, flooring, brick for sidewalks, grading at the First street entrance to grounds, mason and carpenters' time.....	835.65
King Building—reflooring certain rooms and halls, plumbing, hardware, etc.....	754.25
Boiler house—repairs to steam apparatus, purchase of boiler, cleaner, pipe covering, relining boilers.....	1,367.30
Scott Building—reflooring, painting, and plumbing.....	699.56
Home dining hall—painting, tableware, etc.....	619.43
Stanley Hall—purchase of chairs, stage furniture, and canvas for scenery.....	865.25
Home buildings—purchase of beds, mattresses and pillows, lumber for lockers and stands, plumbing.....	894.50
Barnes Hospital—painting, repairs ranges, and purchase of new range, purchase of fire extinguishers and hose, plumbing.....	1,814.54
Pump house—repairs to pumping apparatus, wood and coal shed for engineer's quarters.....	249.01
Amusement room—repairs to billiard, pool, and bagatelle tables.....	51.50
Home fire department—purchase of hose, building hose and reel house.....	220.13
Home farm and dairy—flooring and troughs for cattle, increasing water supply, wire for pasture.....	452.70
Home stables—flooring for stalls, and new weather boarding.....	153.54
Gardener's cottage—new addition, plumbing, etc., for construction.....	1,598.37
Carriage shed—lumber, brick, and plumbing connections.....	211.63
Pheasant house—lumber for construction, wire for netting.....	94.51
Hay barn—lumber and galvanized iron for construction.....	540.56
Wood and coal shed for gate lodge at First street gate.....	76.03
Total.....	33,092.13

CHAS. W. TAYLOR,

Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT H.—Garden account from October 1, 1897, to September 30, 1898, consolidated.

Dr.	
To labor, fertilizers, seeds, tools, fuel, and implements.....	\$5,678.07
Cr.	
By 33,980 plants, trees, and shrubs, raised in garden and greenhouse.....	2,096.50
By balance to debit of garden, expended in improvement of grounds.....	3,672.57
Total.....	5,678.07

NOTE.—This department has the care of the ornamentation of the grounds, lawns, flowers, shrubs, trees, and fruit.

CHAS. W. TAYLOR,

Captain, Ninth Cavalry, Secretary and Treasurer.

EXHIBIT I.—*Farm and dairy account from October 1, 1897, to September 30, 1898, consolidated.*

DR.			
Labor, forage, fertilizers, implements, seeds, repairs, and purchase of animals	\$7,508.01	25 bushels onion sets	50.00
Balance to credit of farm and dairy.....	1,068.58	3,490 bunches parsley	69.80
Total	8,574.59	276½ bushels parsnips	138.25
		3 barrels pickles (cucumbers)	15.00
		789 bushels potatoes	606.61
		1,323 bunches radishes	6.99
		2,318 bunches rhubarb	69.34
		217 bushels salsify	108.91
		357½ bushels spinach	116.25
		1,497 pounds squash	14.97
		96 bushels string beans	61.75
		252 bushels tomatoes	123.75
		106½ bushels turnips	21.25
		63.1 tons of hay	631.00
		14,506½ gallons milk	2,175.86
		Sale of 8 calves	32.00
		Value of stock on hand	3,080.00
		Total	8,574.59
CR.			
146 bushels beets	72.13		
17,764 heads cabbage	565.35		
64 bushels carrots	35.75		
270½ dozen ears corn	32.48		
29 bushels cucumbers	19.00		
1,030 pounds horse radish	30.90		
181½ bushels kale	63.44		
6,155 heads lettuce	184.65		
16,593 bunches onions	126.50		
164 bushels onions	123.66		

Estimate of vegetables in the ground on the farm September 30, 1898.

50 bushels beets, at 75 cents.....	\$37.50	12,000 pounds squash, at 1 cent.....	\$120.00
100 bushels carrots, at 50 cents	50.00	100 bushels turnips, at 20 cents	20.00
400 pounds horse radish, at 3 cents.....	12.00		
200 bushels parsnips, at 50 cents	100.00	Total	389.50
100 bushels salsify, at 50 cents	50.00		

The herd on September 30, 1898, consisted of 1 bull, 40 cows, and 6 calves; also 8 mules and 1 horse. The dairy account was consolidated with farm account under head of "Farm and dairy," to date from October 1, 1897.

CHAS. W. TAYLOR,
Captain, Ninth Cavalry, Secretary and Treasurer.

EXHIBIT K.—*Vegetables furnished Home and hospital mess from farm, for the year ending September 30, 1898.*

Barnes Hospital	\$2,084.70
Home mess	303.65
Total	\$2,388.35

No fruit furnished. Average number of men in Home and hospital during same period.

CHAS. W. TAYLOR,
Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT L.—*Vegetables purchased, in addition to those received from the farm, for the year ending September 30, 1898.*

Date of purchase.	Cabbage.	Watermelons.	Sweet potatoes.	Onions.	Squash.	Grapes.	Apples.	Cranberries.	Bananas.	Onions.	Yams.
	Lbs.	No.	Bbls.	Bush.	Bbls.	Baskets.	Bbls.	Bush.	Bunch's.	Bbls.	Bbls.
October	3,400	100	28	16	8	200	10				
November			16	35	12		32	4½	11	11	10
December			28				22			5	18
January			4		6	125				6	13
February			18							4	
March			19							8	
April										3	
May											
July	3,000										
August	2,400	180									
September	2,400	312	12								
Total	11,200	542	125	51	26	325	64	4½	11	35	41
Cost.....	\$14,845	\$109.00	\$171.75	\$49.40	\$26.70	\$37.00	\$194.70	\$10.13	9.30	\$63.50	\$64.95

TABLE L.—*Vegetables purchased, in addition to those received, etc.—Continued.*

Date of purchase.	Oranges.	Celery.	Potatoes, white.	Onions.	Lettuce.	Oranges.	Bananas.	Potatoes, white.	Kale.	Cabbage.	Strawberries.
	Boxes.	Stalks.	Lbs.	Lbs.	Heads.	Doz.	Doz.	Bush.	Bush.	Crates.	Qt.
1897.											
December	8										
1898.											
January		240	5,900	370	2	2	2				
March		12						300			
April								198½	90		
May								300		2	74
June								300			1.16
July					3	1					
August											
Total	8	252	5,900	370	5	3	2	898½	90	2	1.84
Cost	\$32.00	\$8.75	\$73.67	\$750	\$0.29	\$1.15	\$0.30	\$828.49	\$10.50	\$3.25	\$102.73

Date of purchase.	Green onions.	Onions.	Cabbage.	Plums.	Peaches.	Cantaloupes.	Tomatoes.	Cucumbers.	Potatoes, white.	Blackberries.	Cantaloupes.	Total cost.
	Bun.	Boxes.	Bbls.	Bask.	Baskets.	No.	No.	No.	Bbls.	Qts.	Bbls.	
1897.												
October												\$94.39
November												108.00
December												230.00
1898.												
January												145.15
February												61.00
March												122.51
April												270.00
May												181.40
June	100	9										230.24
July			3									279.45
August				1	2	8	24	3	40	416	16	233.44
September												134.75
Total	100	9	3	1	2	8	24	3	40	416	16	
Cost	\$0.75	\$18.00	\$3.50	\$0.20	\$0.38	\$0.85	\$0.60	\$0.05	\$90	\$20.80	\$35.00	2,144.23

CHAS. W. TAYLOR,

Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT M¹.—*Home mess bill of fare for seven days ending November 24, 1898.*

Friday, November 18.—Breakfast: Codfish with cream, potatoes, bread, butter, and coffee. Dinner: Soup, baked fresh fish, cold sliced meat, salsify, potatoes, pickles, bread, milk, and coffee. Supper: Bread, cheese, butter, sirup, and tea. Milk consumed (38½ gallons): For coffee 11, tea 6, kitchen 11½, and mess hall 10 gallons.

Saturday, November 19.—Breakfast: Beef stew, bread, butter, and coffee. Dinner: Pork shoulders, cabbage, potatoes, pickles, bread, milk, and coffee. Supper: Hot rolls, corn meal-mush, bread, butter, sirup, and tea. Milk consumed (37 gallons): For coffee 11, tea 6, kitchen 2, and mess hall 18 gallons.

Sunday, November 20.—Breakfast: Corned beef hash, bread, butter, and coffee. Dinner: Roast beef with gravy, potatoes, squash, pickles, rice pudding, bread, milk, and coffee. Supper: Ginger cake, bread, butter, sirup, and tea. Milk consumed (37 gallons): For coffee 11, tea 6, kitchen 12, and mess hall 8 gallons.

Monday, November 21.—Breakfast: Ham, hominy, bread, butter, and coffee. Dinner: Soup, boiled beef, potatoes, turnips, pickles, bread, milk, and coffee. Supper: Plum preserves, bread, butter, and tea. Milk consumed (34 gallons): For coffee 11, tea 6, kitchen 1, and mess hall 16 gallons.

Tuesday, November 22.—Breakfast: Beef stew, bread, butter, and coffee. Dinner: Roast beef with gravy, potatoes, parsnips, pickles, bread, milk, and coffee. Supper: Bologna sausage, bread, butter, sirup, and tea. Milk consumed (34 gallons): For coffee 11, tea 6, kitchen 1, and mess hall, 16 gallons.

Wednesday, November 23.—Breakfast: Corned-beef hash, bread, butter, and coffee. Dinner: Soup, corned beef, potatoes, turnips, pickles, bread, milk, and coffee. Supper: Corn bread, bread, butter, sirup, and tea. Milk consumed (34½ gallons): For coffee 11, tea 6, kitchen 1½, and mess hall, 6 gallons.

Thursday, November 24.—Breakfast: Frankfurt sausage, hominy, bread, butter, and coffee. Dinner: Roast turkey, cranberry sauce, mashed potatoes, celery, green pease, mince pies, apples, bread, milk, and coffee. Supper: Bread, butter, sirup, and tea. Milk consumed (35½ gallons): For coffee 11, tea 6, kitchen 12½, and mess hall 6 gallons.

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT M².—Subsistence stores consumed, showing the total for the month and average amount (in pounds) issued in one day to dining hall during the month of December, 1897.

Articles.	Pounds.	Articles.	Pounds.	Articles.	Pounds.
Ham	1,786	Baking powder.....	27	Cabbage	5,584
Bacon	42	Vinegar.....	378	Turnips.....	1,320
Coffee.....	1,365	Potatoes.....	12,480	Parsnips.....	2,640
Tea.....	150	Onions.....	420	Salsify.....	1,440
Sugar.....	1,250	Fresh eggs.....	270	Beets.....	720
Rice.....	80	Apples.....	1,200	Carrots.....	200
Beans.....	530	Fresh beef.....	9,108	Parsley.....	10
Pork shoulders.....	1,205	Corned beef.....	2,730	Horse-radish.....	120
Codfish.....	660	Fresh pork.....	600	Pickles.....	378
Mustard.....	24	Fresh mutton.....	1,106	Cranberries.....	150
Pepper.....	30	Fresh pork sausage.....	1,400	Celery.....	43
Butter.....	1,800	Bologna sausage.....	250	Total.....	108,112
Salt.....	225	Head-cheese.....	250	Per day.....	3,487½
Cheese.....	600	Fresh fish.....	800	Average daily number	
Macaroni.....	25	Oysters (120 gallons).....	1,440	of men present in	
Oyster crackers.....	45	Apples, evaporated.....	26	quarters.....	760½
Cornstarch.....	80	Peaches, evaporated.....	70		
Tomatoes.....	490	Flour.....	196		
Lemon extract.....	2½	Milk (1,800 gallons).....	22,320		
Vanilla extract.....	1½	Fresh bread and cake.....	19,955		

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT M³.—Subsistence stores consumed, showing the total for the month and average amount (in pounds) issued in one day to dining hall during the month of June, 1898.

Articles.	Pounds.	Articles.	Pounds.	Articles.	Pounds.
Ham	1,690	Lemon extract.....	18	Flour.....	196
Bacon.....	60	Vanilla extract.....	6	Fresh bread and cake.....	17,437
Coffee.....	1,259	Pickles.....	14	Milk (1,200 gallons).....	16,320
Tea.....	137	Baking powder.....	10	Green onions.....	4,500
Sugar.....	3,350	Sweet oil.....	1	Cabbage.....	2,940
Rice.....	110	Vinegar.....	756	Lettuce.....	1,850
Beans.....	510	Green pease.....	264	Rhubarb.....	300
Oatmeal.....	160	Potatoes.....	10,280	Parsley.....	10
Pork shoulders.....	1,350	Fresh eggs.....	1,077	Blackberries.....	600
Mustard.....	24	Fresh beef.....	9,015	Total.....	82,859
Pepper.....	40	Corned beef.....	3,248	Per day.....	2,761½
Salt.....	450	Fresh mutton.....	424	Average daily number	
Cheese.....	341	Fresh pork sausage.....	1,500	of men present in	
Macaroni.....	100	Bologna sausage.....	400	quarters.....	710
Cornstarch.....	30	Fresh fish.....	800		
Tomatoes.....	582	Claims.....	720		

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

REPORT OF THE SECRETARY OF WAR.

EXHIBIT N¹.—*Clothing washed during the month of September, 1898.*

[James S. Cotton, contractor.]

Date.	Sheets.	Pillow-cases.	Shirts.	Drawers.	Socks.
September 3.....	649	648	421	311	7
September 10.....	645	645	363	278	6
September 17.....	632	632	378	297	9
September 24.....	641	641	386	325	8
Total.....	2,567	2,566	1,548	1,211	30

8,414 pieces regular washing for September, 1898. 40 per cent washed their own shirts during the month; 53 per cent washed their own drawers; and 90 per cent washed their own socks.

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT N².—*Extra washing done during the month of September, 1898.*

[James S. Cotton, contractor.]

449 roller towels, at 75 cents per 100.....	\$2.5
333 hand towels, at 50 cents per 100.....	1.5
79 aprons, at 1 cent.....	.79
90 jackets, at 5 cents.....	4.50
4 caps, at 5 cents.....	.20
7 spreads, at 5 cents.....	.35
1 blanket, at 6 cents.....	.06
47 mattress covers, at 5 cents.....	2.35
2 trousers, at 6 cents.....	.12
Total.....	13.41

1,012 pieces extra washing in September, 1898.

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT N³.—*Regular and extra washing done from October 1, 1897, to September 30, 1898.*

[James S. Cotton, contractor.]

Month.	Regular washing.				
	Sheets.	Pillow-cases.	Shirts.	Drawers.	Socks (pairs).
1897.					
October.....	3,142	3,142	2,000	1,549	284
November.....	2,589	2,590	1,637	1,292	249
December.....	2,599	2,599	1,538	1,232	241
1898.					
January.....	3,268	3,268	2,071	1,663	295
February.....	2,616	2,645	1,705	1,385	242
March.....	2,571	2,570	1,597	1,260	236
April.....	3,124	3,125	2,011	1,595	271
May.....	2,513	2,513	1,546	1,214	242
June.....	2,419	2,419	1,463	1,151	239
July.....	2,946	2,945	1,766	1,410	314
August.....	2,533	2,533	1,583	1,248	275
September.....	2,567	2,566	1,548	1,211	261
Total.....	32,917	32,915	20,465	16,210	3,197
Average per month.....	2,743	2,743	1,705	1,351	266

EXHIBIT N³.—*Regular and extra washing done, etc.*—Continued.

Month.	Extra washing.									Average men per month.
	Roller towels.	Hand towels.	Aprons.	Jackets.	Caps.	Spreads.	Mattress cov-ers.	Blankets.	Billiard-table covers.	
1897.										
October	556	441	120	113	15	6	65			628
November	450	353	94	90	16	4	46			647
December	445	342	87	90	16	3	46			650
1898.										
January	555	418	118	114	17	1	60			654
February	438	336	98	97	10	4	52		6	662
March	441	335	94	91	8	4	76			643
April	550	419	101	114	11	3	109	2		625
May	439	329	87	88	8	3	172	2		628
June	452	323	85	89	4	4	82	7		605
July	565	416	106	112	5	6	92			589
August	449	329	80	88	4	8	126	2	2	633
September	440	333	79	90	4	7	47	1		642
Total	5,789	4,374	1,149	1,176	118	53	973	14	8	7,606
Average per month	482	365	96	98	10	4	81	1		634

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT O.—*List of crockery in daily use during the year ending September 30, 1898, with per cent of breakage.*

	Dinner plates.	Soup plates.	Vegetable dishes.	Butter dishes.	Bowls.	Total.
In use	2,100	700	300	200	2,100	5,400
Per cent of breakage	8	24	3	0	8	9½

R. F. BERNARD,
Brevet Brigadier-General, Deputy Governor.

EXHIBIT P.—*Number of horses and mules owned and employed September 30, 1898.*

Horses:

For carts and wagons on roads, grounds, and police, including one stone boat for polioing grounds	5
Laundry wagon	2
Market wagon	2
Hospital ambulance	2
Mail wagon	1
Road sprinkler	2
Farm and dairy	1
Total	15
Mules for use of farm and dairy	8

TRANSPORTATION.

	Governor.	Deputy governor.	Treasurer.	Clerical assistant.
Forage for horses	2	2		1
Buggy and single harness			1	

CHAS. W. TAYLOR,
Captain, Ninth United States Cavalry, Secretary and Treasurer.

EXHIBIT Q.—Hospital mess: Ration return for 10 days, from the 21st to the 30th of September, 1898.

Required:	
Sugar	pounds. 130
Coffee	do. 85
Tea	do. 12
Bacon	do. 25
Beans	do. 50
Rice	do. 25
Soap	do. 60
Salt	do. 25
Butter	do. 60

Clinical assistant	1
Hospital matron	1
Employees	30
Patients	73
Total	110

Special diet for the week ending September 24, 1897, asked for by the patients or prescribed by the doctor.

Ward and name of patient.	Breakfast.	Dinner.	Supper.
Ward A:			
Brown	Oatmeal porridge	Milk	Milk.
Lanning	Hot milk, dry toast, 3 hard-boiled eggs.	Hot milk, dry toast, 3 hard-boiled eggs, boiled rice.	Hot milk, dry toast, 3 hard-boiled eggs, boiled rice.
Lawrence	2 soft-boiled eggs	Milk	Milk.
Harrison		Milk	Coffee.
Houghton			
Ward B:			
Butts	Oatmeal porridge	Milk	Milk.
Schalzinger	Milk	Oatmeal porridge, coffee.	Oatmeal porridge.
Sheran	Oatmeal porridge	Milk	Do.
Rooney	2 fried eggs	Oatmeal porridge, hash.	Do.
Walton	Butter toast	Butter toast	2 fried eggs.
Korosey		Milk	Butter toast.
Lehan	2 fried eggs, milk toast.	do	Milk, 2 fried eggs.
East	Chicken jelly, hot milk, butter toast, 2 fried eggs.	Chicken jelly, beefsteak.	2 fried eggs, milk toast.
Blaine			Hot milk, butter toast, 2 fried eggs.
Ward C:			
Moran	Milk toast, cornstarch ..	Chicken stew	Milk toast, cornstarch.
Lethorpe	Hot milk, oatmeal porridge.	Hot milk, cornstarch ..	Hot milk, 2 fried eggs.
Hunter	Milk	Milk	Milk.
Murphy	Dry toast, oatmeal porridge.	Hot milk, dry toast ..	Dry toast.
Madigan	Milk, 2 soft-boiled eggs.	Chicken stew, 1 soft-boiled egg, milk.	Milk, 2 soft-boiled eggs.
O'Dowd	Milk	Milk	Milk.
Smith	2 fried eggs	do	Do.
Ward D:			
Taylor	Oatmeal porridge		Oatmeal porridge.
Turner	Oatmeal, dry toast, 2 eggs.		Crackers and milk.
Watkins	Oatmeal porridge		Oatmeal porridge.
Irwin	do		
McCann	Milk toast	Chicken stew	Crackers and milk.
Varga	do	Dry toast	Dry toast.
Johnson	Oatmeal porridge		Milk.
Ward E:			
Collins	Cornstarch		Cornstarch.
Lehr	2 fried eggs		2 fried eggs, coffee.
Cooney	Milk	Milk	Milk.
Branagan	Oatmeal porridge		Oatmeal porridge.
Freeton		Chicken stew	
Schelcorvsky	2 soft-boiled eggs		2 fried eggs.
Tahaney			Do.
Ward F:			
Devine	Oatmeal porridge	Oatmeal porridge	Oatmeal porridge.
Gautchins			Do.
Morris	Milk	Chicken stew	
Voegele	Oatmeal porridge		Do.
Blucher		2 soft-boiled eggs	2 soft-boiled eggs.
Willman	Milk	Milk	Milk, 2 fried eggs.

Received, issued, and remaining on hand from September 20 to September 30, 1898.

Received and issued:

Bacon	pounds	20
Beer	dozen	2
Beef, fresh	pounds	815
Beef extract	bottles	12
Beef, corned	pounds	90
Bread	do	720
Oleomargarine	do	60
Cake	sheets	5
Cheese	pounds	22
Chicken	do	36
Coffee	do	100
Cabbage	barrel	1
Eggs	dozen	60
Fish, fresh	pounds	85
Lemons	dozen	1
Milk	gallons	200
Matches, safety	gross	1
Mutton	pounds	60
Pork, fresh	do	115
Potatoes	bushels	20
Rice	pounds	25

Received and issued—Continued:

Sausages	pounds	83
Sugar	do	200
Soap	do	60
Tea	do	10
Tomatoes	bushels	2
On hand October 1, 1898:		
Beer	bottles	14
Beef, fresh	pounds	65
Beef extract	bottles	9
Bread	pounds	38
Oleomargarine	do	20
Cheese	do	9
Coffee	do	8
Eggs	dozen	5
Milk	gallons	2
Matches, safety	boxes	36
Potatoes	bushels	8
Rice	pounds	15
Sugar	do	10
Soap	do	26

Estimate for stores and supplies for use of hospital during September, 1898.

Apricots, evaporated	pounds	50
Royal Baking Powder	do	6
Barley	do	10
Beer, Pabst	dozen	8
Blacking, shoe	do	1
Blacking, shoe, brushes	do	3
Beans, lima	pounds	2
Beans, string	do	10
Cabbage	barrels	4
Codfish, salt	pounds	80
Cheese	do	60
Chicken	do	75
Corn, green	dozen	8
Cornstarch	pounds	24
Corn meal	do	10
Dublin stout	dozen	2
Eggs	do	200
Extract vanilla	do	1
Farina	pounds	24
Fish, fresh	do	250
Gelatine	packages	3
Hams	pounds	300
Lard	do	30

Lemons, fresh	dozen	8
Matches, safety	gross	1
Mackerel	barrel	1
Macaroni	pounds	24
Noodles, Smith's	do	20
Oats, rolled	do	75
Onions	bushels	8
Pease, split	pounds	30
Pease, green	dozen	8
Putz pomade	boxes	12
Prunes, evaporated	pounds	50
Pork, fresh	do	240
Potatoes, sweet	barrels	3
Peaches, evaporated	pounds	50
Pearline	case	1
Sausages, assorted	pounds	75
Sapallo	dozen	3
Sal soda	pounds	20
Sugar, granulated	do	75
Sugar, powdered	do	10
Tomatoes	dozen	5
Taploca	pounds	24
Vichy	dozen	2

On hand in kitchen, dining room, and wards from September 18 to 24, 1898.

On hand September 18:

Kitchen—	
Eggs	dozens 9
Pease, green	cans 34
Vanilla	bottle 1
Lemons	number 3
Dining room—	
Bread	pounds 44
Cake	sheets 12
Cheese	pounds 12
Soap	do 2
Wards, etc.—	
Sapallo, C	cakes 2
Lemon	number 1
Vichy, F	siphon 1
Vichy, A	do 1
Beer, E	bottle 1

On hand September 19:

Kitchen—	
Beef, fresh	pounds 115
Tomatoes	gallon 1
Onions	bushels 2
Lard	pounds 5
Powder, baking	do 1
Pearline	packages 2
Soap	pounds 2
Dining room—	
Bread	pounds 66
Vinegar	gallon 1
Soap	pounds 2
Wards, etc.—	
Matches, H	boxes 12
Matches, Disp	do 12

On hand September 20:

Kitchen—	
Lamb	pounds 74
Bacon	do 6
Eggs	dozens 9
Chicken	pounds 12
Beef, extract	bottle 1
Cabbage	barrel 1
Dining room—	
Bread	pounds 78
Wards, etc.—	
Matches, F	boxes 12
Beef extract, E	bottle 1

On hand September 21:

Kitchen—	
Beef, fresh	pounds 117
Pork	do 56
Prunes	do 50
Eggs	dozens 6
Soap	pounds 4
Dining room—	
Bread	pounds 70
Butter	do 9
Wards, etc.—	
Sapallo, A	cake 1
Sapallo, F	do 1
Lemon, C	number 1
Beer, E	bottle 1

On hand September 22:

Kitchen—	
Pork, salt	pounds 23
Eggs	dozens 9
Cornstarch	pounds 6
Lard	do 5
Beef extract	bottle 1

On hand in kitchen, dining room, and wards from September 18 to 24, 1898—Continued

On hand September 22—Continued.

Dining room—	
Bread.....	pounds.. 76
Granulated sugar.....	do.. 2
Pearline.....	package.. 1
Sapallo.....	cake.. 1
Soap.....	pounds.. 4
Wards, etc.—	
Lye, E.....	can.. 1
Sapallo.....	cake.. 1
Beer.....	bottle.. 1
Lemon, C.....	number.. 1

On hand September 23:

Kitchen—	
Beef, fresh.....	pounds.. 150
Ham.....	do.. 79
Beef extract.....	bottle.. 1
Vanilla.....	do.. 1
Lemons.....	number.. 3
Fish, fresh.....	pounds.. 85
Macaroni.....	do.. 7
Cheese.....	do.. 4
Tomatoes.....	bushels.. 2
Dining room—	
Butter.....	pounds.. 2
Bread.....	do.. 79
Sapallo.....	cakes.. 2

On hand September 23—Continued.

Wards, etc.—	
Matches, E.....	boxes.. 2
Granulated sugar, C.....	pounds.. 1
Granulated sugar, D.....	do.. 1
Granulated sugar, Disp.....	do.. 1

On hand September 24:

Kitchen—	
Beef, fresh.....	pounds.. 16
Chicken.....	do.. 12
Eggs.....	dozens.. 1
Tomatoes.....	gallon.. 1
Squash.....	pounds.. 6
Butter.....	do.. 3
Dining room—	
Butter.....	pounds.. 12
Bread.....	do.. 2
Soap.....	do.. 1
Wards, etc.—	
Beef extract, E.....	bottle.. 1
Matches, D.....	boxes.. 2
Blacking.....	do.. 1
Puts-pomade.....	do.. 1
Sapallo.....	cake.. 1
Lemons, C.....	number.. 1

Full diet for the week ending September 24, 1898.

Sunday.—Breakfast: Cold boiled ham, fried potatoes, butter, bread, coffee. Dinner: Roast beef, gravy, green peas, mashed potatoes, bread pudding, butter, bread, coffee. Supper: Cake, cheese and crackers, butter, bread, tea.

Monday.—Breakfast: Irish stew, butter, bread, coffee. Dinner: Soup, boiled beef, gravy, potatoes, stewed onions, butter, bread. Supper: Cold roast beef, stewed evaporated apples, butter, bread, tea.

Tuesday.—Breakfast: Baked hash, butter, bread, coffee. Dinner: Smoked shoulder, cabbage and potatoes, pickled beets, butter, bread, coffee. Supper: Baked rice pudding, fried hash, butter, bread, tea.

Wednesday.—Breakfast: Mutton pie, butter, bread, coffee. Dinner: Soup, roast beef, gravy, baked carrots, boiled sweet potatoes, butter, bread. Supper: Cold roast beef, potato salad, butter, bread, tea.

Thursday.—Breakfast: Boiled mackerel, baked potatoes, butter, bread, coffee. Dinner: Roast fresh pork, hot slaw, baked sweet potatoes, butter, bread, coffee. Supper: Head cheese, stewed evaporated, apricots, butter, bread, tea.

Friday.—Breakfast: Baked codfish hash, butter, bread, coffee. Dinner: Baked bluefish, sauce, mashed potatoes, cornstarch pudding, butter, bread, coffee. Supper: Macaroni and cheese, butter, bread, tea.

Saturday.—Breakfast: Beef stew, butter, bread, coffee. Dinner: Soup, boiled beef, gravy, potatoes, stewed tomatoes, butter, bread. Supper: Cold roast beef, stewed evaporated, prunes, butter, bread, tea.

EXHIBIT R.

List of medicines on hand March 31, 1898, and six months' supply received April 2, 1898, at hospital.

Aggregate number present (all invalids).....	751
Average in hospital.....	74.2
Average at sick call.....	6.57

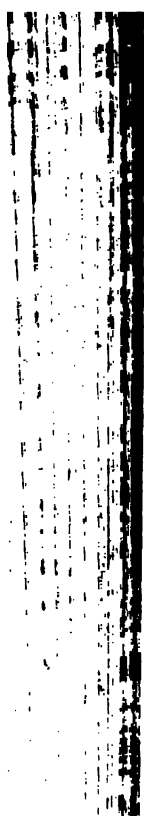
Articles.	On hand.	Re- ceived.	Articles.	On hand.	Re- ceived.
Acacia:			Acid—Continued.		
Gum.....	pounds.. 1	.....	Nitric, C. P.....	pounds.. 1	.....
Powdered.....	do.. 6	.....	Nitric, commercial.....	do.. 5	.....
Acetanilid.....	do.. 3	.....	Oxalic.....	do.. 5	.....
Acid:			Salicylic.....	do.. 1	.....
Acetic.....	do.. 1	.....	Sulphuric, C. P.....	do.. 1	.....
Benzole.....	ounces.. 2	.....	Sulphuric, com.....	do.. 2	.....
Boracic.....	pounds.. 5	.....	Tartaric.....	do.. 3	.....
Carbolic, pure.....	do.. 1	.....	Tannic.....	do.. 1	.....
Carbolic, common.....	do.. 15	.....	Alcohol.....	gallons.. 1	38
Citric.....	do.. 1	.....	Ammonia:		
Hydrochloric, C. P.....	do.. 4	.....	Aromatic spirits.....	pounds.. 1	.....
Hydrochloric, com.....	do.. 4	.....	Bromide.....	do.. 1	.....

List of medicines on hand March 31, 1898, etc.—Continued.

Articles.	On hand.	Received.	Articles.	On hand.	Received.
Ammonia—Continued.			Oil—Continued.		
Salicylate.....pounds..	1		Spearmint.....ounces..	4	
Water of.....do.....	14		Castor.....gallons..	2	
Antikamnia.....ounces..	5		Cod-liver.....do.....	4	
Antipyrine.....do.....	5		Cotton-seed.....do.....	1	5
Bark, wild cherry, powdered, pounds..	5		Opium, powdered.....pounds..	1	
Bismuth, subnitrate.....pounds..	1	2	Paraffin.....do.....	1	
Bismuth, subcarbonate.....do.....	1		Pepsin.....ounces..	4	
Bromine.....ounces..	2	6	Peru, balsam.....pounds..	3	
Camphor, gum.....pounds..	4		Petrolatum.....do.....	11	20
Capsules.....boxes..	16		Phenacetin.....ounces..	28	
Cardamon seed, powdered, pounds..	1		Pills:		
Catechu.....pounds..	2		Anticonstipation.....number..		5,000
Campho-phenique.....bottles	3	6	Cathartic, compound.....do.....	500	
Chloranodyne.....ounces..	6		Dover's powder.....do.....	100	
Chloralamid.....do.....	1	2	Mass hydrarg.....do.....	500	
Chloroform.....pounds..	8		Quinia, sulphate, 2 grains, number.....		
Chloral hydrate.....ounces..	6		Quinia, sulphate, 3 grains, number.....	1,000	1,000
Cocaine, hydrochlorate.....do.....	1		Salol, 5 grains.....number..	750	
Collodion, flexible.....do.....	4	6	Potassa:		
Creasote, beechwood.....pounds..	2		Acetate.....pounds..	2	
Copaiba, balsam.....do.....	5		Chlorate.....do.....	2	
Elixir purgans.....bottles	5	12	Bicarbonate.....do.....	3	
Ether:			Bichromate.....do.....	2	
Fortior.....pounds..	2	10	Bitartrate.....do.....	2	
Commercial.....do.....	2		Bromide.....do.....	3	3
Spirits, compound.....do.....	2	2	Iodide.....do.....	4	10
Spirits, nitrous.....do.....	2	5	Nitrate.....do.....	5	
Extract:			Permanganate.....do.....		5
Belladonna.....ounces..	2		Plaster paris.....do.....	30	
Buchu, fluid.....pounds..	2		Plaster:		
Cascara sagrada, fluid.....do.....	2	5	Adhesive.....yards..	40	
Triticum repens, fluid.....do.....	1	5	Belladonna.....do.....	10	
Licorice.....do.....	4		Mustard.....do.....	10	
Nux vomica.....ounces..	2		Porous.....number..	168	500
Opium, aqua.....do.....	1		Quinia, sulphate.....ounces..	5	10
Uva ursi, fluid.....pounds..	1	5	Rhubarb:		
Flaxseed.....do.....	36		Powdered.....do.....	16	
Flaxseed meal.....do.....	30	50	Root.....do.....		2
Formalin.....do.....	3		Rochelle salts.....pounds..	13	
Glycerin.....do.....	6	10	Silver, nitrate.....ounces..	1	
Glycyrrhiza, compound powder, pounds..	2	5	Silver, nitrate, fused.....do.....	3	
Hydroozne.....do.....	20		Soap, castile.....bars..		8
Iodine.....ounces..	7		Soda:		
Iodoform.....pounds..	4	5	Bicarbonate.....pounds..	5	
Ipecac and opium, powdered, pounds..	2		Borate.....do.....		5
Iron:			Chlorinated sol.....bottles..	12	
Citrate and quinia.....ounces..	15		Salicylate.....pounds..	4	
Dialyzed.....pounds..	1		Stramonium leaves.....do.....	2	4
Pyrophosphate.....do.....	1		Sulfonal.....ounces..		5
Reduced.....ounces..	2		Sulphur:		
Sirup, iodide of.....pounds..	1		Washed.....pounds..	4	
Lanolin.....do.....	1		Roll.....do.....	50	
Lead, acetate.....do.....	3		Tablets:		
Listerine.....bottles..		6	Antiseptic No. 3.....number..	400	
Lycopodium.....ounces..	6		Antiseptic No. 4.....do.....	500	
Magnesia:			Calomel and sugar.....do.....	500	1,000
Carbonate.....pounds..	1		Heart tonic.....do.....		500
Sulphate.....do.....	16		Morph. sulph. $\frac{1}{2}$ grain.....do.....	200	
Mercury:			Morph. sulph. $\frac{1}{2}$ grain.....do.....	100	
Bichloride.....do.....	1		Therapol.....ounces..	6	24
Mild chloride.....do.....	1		Tincture:		
Metallic.....do.....	1		Belladonna.....do.....	50	
Ointment, nitrate.....do.....	1		Chloride of iron.....do.....	16	
Oleate.....do.....	1		Serpentaria.....do.....	24	
Morphia:			Veratrum viride.....do.....	4	
Acetate.....ounces..	1		Trikresol.....pounds..	3	
Sulphate.....do.....	1	1	Wax:		
Oil:			White.....ounces..	2	
Cassia.....do.....	3		Yellow.....pounds..	8	20
Cloves.....do.....		1	Whisky.....gallon..	1	25
Croton.....do.....	2		Wine, sherry.....do.....	1	
Lemon.....do.....	6		Wine, port.....do.....	1	
Male-fern.....do.....	1		Zinc:		
Orange.....do.....	12		Acetate.....ounces..	8	
Rosemary.....do.....	2		Oxide.....do.....	8	
			Sulphate.....do.....	20	



**REPORT OF BOARD OF VISITORS TO THE UNITED
STATES MILITARY ACADEMY**



REPORT

OF THE

BOARD OF VISITORS

TO THE

UNITED STATES MILITARY ACADEMY

FOR THE YEAR 1898.

To the Secretary of War, the President of the Senate, and the Speaker of the House of Representatives:

The following report of the Board of Visitors to the United States Military Academy at West Point for the year 1898 is respectfully submitted:

The Board of Visitors was appointed in accordance with the provisions of the Revised Statutes of the United States, sections 1327, 1328, and 1329. These statutes contain the authority for the appointment of the Board, the purpose for which it is appointed, and the nature and scope of its duties.

The persons constituting the Board are named below:

APPOINTED BY THE PRESIDENT OF THE UNITED STATES.

1. Hon. WALTER L. BOUVÉ..... Hingham, Mass.
2. Gen. SIMON B. BUCKNER..... Rio, Ky.
3. Hon. ASHBEL P. FITCH..... New York, N. Y.
4. Hon. WILLIAM T. FAIRCLOTH..... Goldsboro, N. C.
5. Mr. ALEXANDER W. HOFFMAN..... Buffalo, N. Y.
6. Mr. WILLIAM P. WALTON..... Greensboro, Ala.
7. Gen. CHAUNCEY MCKEEVER, U. S. A..... Washington, D. C.

APPOINTED BY THE PRESIDENT OF THE SENATE.

8. Hon. JOSEPH R. HAWLEY..... Hartford, Conn.
9. Hon. RICHARD R. KENNEY..... Dover, Del.

APPOINTED BY THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

10. Hon. JOHN A. T. HULL..... Des Moines, Iowa.
11. Hon. ROBERT ADAMS, Jr..... Philadelphia, Pa.
12. Hon. FARISH C. TATE..... Jasper, Ga.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 1, 1898.

The Board met at 10 a. m., June 1, 1898.

Present: Gen. Simon B. Buckner, Hon. William T. Faircloth, Mr. Alexander W. Hoffman, Mr. William P. Walton, and Hon. Robert Adams, jr.

There not being a full quorum, a temporary organization was effected by electing Gen. Simon B. Buckner, president.

At 4.20 p. m. the Board was officially visited by the Superintendent, Col. O. H. Ernst, Corps of Engineers, his staff, the Academic Board, and the officers of the post. The Board was then escorted to the parade ground, while a salute was fired in its honor. The appointed military exercises of the day, the escort of the colors, and the review, then took place.

Afterwards the Board was received most hospitably at the residence of Col. O. H. Ernst, and introduced to the officers and ladies of the post.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 2, 1898.

SECOND DAY.

The Board of Visitors to the United States Military Academy for the year 1898 assembled at 10 o'clock a. m. at the call of Gen. Simon B. Buckner, temporary president.

Present: Gen. Simon B. Buckner, Hon. William T. Faircloth, Mr. Alexander W. Hoffman, Mr. William P. Walton, Gen. Chauncey McKeever, and Hon. Robert Adams, jr.

Hon. Robert Adams, jr., was elected temporary secretary.

It was unanimously carried that the Board meet at 8.30 p. m. to-day, and also at 9 a. m. to-morrow.

The Board of Visitors attended the examinations in the Academic building.

ROBERT ADAMS, Jr.,
Secretary pro tem.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 2, 1898.

SECOND DAY—SECOND SESSION.

The Board met pursuant to adjournment.

Present: The members who were present at the last meeting. No quorum being present, the Board adjourned.

The Board witnessed the exercises in the school of the troop on the cavalry plain at 5 p. m.

ROBERT ADAMS, Jr.,
Secretary pro tem.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 3, 1898.

THIRD DAY.

The Board met at 9 a. m.

Present: The members who were present at the last meeting. The minutes of previous meetings were read and adopted.

The Board, upon motion, adjourned subject to call of the president.

ROBERT ADAMS, Jr.,
Secretary pro tem.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 3, 1898.

THIRD DAY—SECOND SESSION.

The Board of Visitors to the United States Military Academy for the year 1898 assembled at 1.30 p. m. at the call of Gen. Simon B. Buckner, temporary president.

Present: Gen. Simon B. Buckner, Hon. William T. Faircloth, Mr. Alexander W. Hoffman, Mr. William P. Walton, Gen. Chauncey McKeever, Hon. John A. T. Hull, Hon. Robert Adams, jr.

Absent: Hon. Walter L. Bouvé, Hon. Ashbel P. Fitch, Hon. Joseph R. Hawley, Hon. Richard R. Kenney, Hon. Farish C. Tate.

Gen. Simon B. Buckner was nominated as permanent president, and elected.

Hon. William T. Faircloth was elected as vice-president.

Mr. Alexander W. Hoffman was elected as permanent secretary.

On motion it was voted that the president appoint the usual committees.

The chair therefore appointed the following committees:

Appointments and examinations.—Gen. Simon B. Buckner, chairman; Hon. William T. Faircloth.

Discipline and instructions.—Gen. Chauncey McKeever, chairman; Mr. William P. Walton, Hon. Robert Adams, jr.

Armament and equipment.—Gen. Chauncey McKeever, U. S. A., chairman; Hon. William T. Faircloth.

Buildings, grounds, and lights.—Hon. John A. T. Hull, chairman; Hon. Robert Adams, jr.

Fiscal affairs, supplies and expenditures for cadets.—Hon. Robert Adams, jr., chairman; Mr. Alexander W. Hoffman.

Hygiene and athletics.—Hon. William T. Faircloth, chairman; Gen. Simon B. Buckner.

On motion of General McKeever it was voted to adjourn until 9 a. m. to-morrow.

ALEX. W. HOFFMAN, *Secretary.*

ROOMS OF THE BOARD OF VISITORS,
West Point N. Y., June 4, 1898.

FOURTH DAY.

The Board met at 9 a. m.

Present: The members who were present at the last meeting.

The minutes of the preceding meeting were read and approved. The Board then adjourned to meet at 9 a. m. on Monday, June 6.

The Board visited the drawing academy.

The following communication was received, read, and filed :

HEADQUARTERS UNITED STATES MILITARY ACADEMY,
West Point, N. Y., June 4, 1898.

SIR: I have the honor to acknowledge the receipt of your communication of this date notifying me of the organization of the Board of Visitors

I shall be happy to afford the Board every facility for a thorough inspection of the workings of all the departments of the institution, administrative as well as academic, and in general to do everything possible to assist the Board in its labors.

A programme of the examinations has already been furnished each member. Notice will be given from day to day of such military exercises as are ordered for the Board of Visitors.

Second Lieut. William M. Cruikshanks, First Artillery; Second Lieut. Charles W. Castle, Sixteenth Infantry; Second Lieut. Francis L. J. Parker, Fifth Cavalry, and Second Lieut. Charles H. Paine, Thirteenth Infantry, have been detailed to attend the Board of Visitors during their stay at the Academy.

I hope the Board will communicate with me freely, both personally and officially, upon any subject connected with the Military Academy which may be of interest to its members in connection with their official visit to West Point.

Being under orders to take the field, it is possible that I may be compelled to delegate some parts of this duty to the next in command, Lieutenant-Colonel Hein.

Very respectfully, your obedient servant,

O. H. ERNST,
Brigadier-General of Volunteers, Superintendent.

The SECRETARY OF THE BOARD OF VISITORS,
West Point, N. Y.

ALEX. W. HOFFMAN, *Secretary.*

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 6, 1898.

FIFTH DAY.

The Board met pursuant to adjournment.

Present: The members who were present at the last meeting.

The minutes of the preceding meeting were read and adopted.

On the invitation of the president of the Board, the Superintendent United States Military Academy, Gen. O. H. Ernst, appeared before the Board and gave an account of the improvements which have been effected for the Academy during recent years, and also stated further improvements which were necessary in the library and commissary

buildings. The suggestions of General Ernst were referred to the proper committees for investigation.

The Board adjourned until 9 a. m. to-morrow.

After adjournment the Board went to inspect the cadets' hospital.

ALEX. W. HOFFMAN, *Secretary*.

APPOINTMENTS AND EXAMINATIONS.

The committee on examinations and appointments reports that the individual members here attended the different examinations, and that they were impressed with the accuracy of knowledge which the cadets showed therein; the work done was strong testimony to the thoroughness of the instructors' work, as well as to the diligence of the students.

SIMON B. BUCKNER, *Chairman*.

WILLIAM T. FAIRCLOTH.

The Board renews the recommendations of previous Boards, and urges upon Congress the passage of an act which will permit the appointment of the following number of cadets:

Twenty for the President, one for each Senator, one for each Representative or Delegate.

There is ample room in the cadet barracks for this increase. The plant is there, in full running order.

The average maximum attendance of cadets as now authorized by law is about 80 per cent. The additional number graduating each year from this increase would not be too large to fill up the vacancies yearly occurring in the Army.

DISCIPLINE AND INSTRUCTION.

Your committee has investigated the subject within its province, and is unable to suggest any improvement in the methods of discipline at the Military Academy.

The most able and intelligent administration of the affairs of the Military Academy by the superintendent and staff, the commandant of cadets and his assistants is worthy of the highest commendation. All infractions of the rules are certainly and promptly punished with absolute justice and impartiality.

The committee is pleased to observe that a very high degree of respect is entertained by the cadets toward the officers and professors, and also that these gentlemen fully reciprocate this feeling and use all proper effort to impress the cadets with their confidence in them, all of which tends to increase manliness and self-respect on the part of the cadets.

The methods of instruction as followed at the Academy are the result of many years of experience of accomplished and painstaking officers, and are as nearly perfect in their result as it seems possible to make them. The able, efficient, and satisfactory manner in which

Lieut. Col. Otto L. Hein, commandant of cadets, has discharged the duties of that position deserves special notice and commendation.

CHAUNCEY McKEEVER,
Brigadier-General, U. S. A., Chairman.
WILLIAM P. WALTON.
ROBT. ADAMS, Jr.

ARMAMENT AND EQUIPMENT.

SEACOAST BATTERY.

Your committee recommends that in this battery the five 8-inch converted rifles be replaced with guns of modern type, one of which should be a disappearing gun.

In addition to these five converted rifles this battery contains one 8-inch modern gun, which at present can not be used on account of danger to surrounding towns and railroads.

With the installation of modern high-power, long-range guns, some means must be employed to retain the projectile on firing to prevent danger. The longest range available here is now about 2,100 yards, and the projectiles are fired against the face of a rock in the adjoining mountain. These projectiles are liable to glance on striking and endanger the neighboring towns or the railroads. To prevent this a tunnel or butt should be constructed at the end of the range, which will retain them. Lieut. Col. O. L. Hein, commandant of cadets, has prepared an estimate of the cost of such tunnel or butt, and places the amount at \$1,398.

Your committee considers that the construction of this tunnel or butt is a necessity.

SIEGE AND MORTAR BATTERY.

The guns and howitzers of this battery, with the exception of two, are obsolete, and your committee recommends that these old guns and howitzers be replaced with those of a modern type.

The light battery used in the instruction of the fourth class consists of four guns. This number does not permit of the entire class being drilled together, which is a disadvantage causing much loss of time.

Your committee recommends an addition of two guns to this battery.

CHAUNCEY McKEEVER,
Brigadier-General, U. S. A., Chairman.
WILLIAM T. FAIRCLOTH.

BUILDINGS, GROUNDS, AND LIGHTS.

Your committee on buildings, grounds, and lights have the honor to report as follows:

Your committee made a general examination of all the buildings and grounds. We commend highly the care that is taken of the buildings and grounds of the reservation.

The committee find the cadets' barracks in good condition, and the cadets well quartered. The mess hall is adapted to its purpose, but

the officers' mess is somewhat cramped in space for the number stationed at the post.

The new academic building is probably as well fitted for its purpose and appropriate in design as could be well devised.

The gymnasium also meets with high commendation.

The riding hall and stables are in good condition. The latter would be improved by new feeding troughs and painting inside and outside.

The committee is impressed, as has been former committees, as to the desirability of refitting and remodeling the interior of the library building, so as to make it more suitable for the purposes of a library, and fireproof for the preservation of the valuable books and pamphlets therein contained.

We do not consider the estimates submitted of \$63,100 for said alteration, and of \$6,900 for removing and returning the books, and other contingencies as excessive. The great value of the collection makes their absolute preservation a work of necessity.

The committee have examined with particular care the commissary storehouse. Its present location is too remote for convenience.

Your committee recommend an appropriation of \$8,000 to refit the old army service barracks into a commissary storehouse.

Your committee examined with especial care the new cavalry barracks, and recommend an appropriation of \$4,200 for a porch to be erected around said barracks.

The reservoir of the water supply next claimed the attention of your committee, and, upon completion of the present filter plant, for which appropriation has already been made, we consider the question of water supply for the post will be completed for many years to come.

The cemetery was found to be in good condition, but showed a want of proper attention to the grass, flowers, plants, and trees, the better care of which would show a patriotic reverence to this last resting place of so many heroic dead, and your committee recommend an appropriation of \$720 for a keeper to preserve the same in better repair.

The committee recommend that the usual appropriation of \$500 for the continued construction of the breast-high wall in dangerous places on the roadway be continued.

Other wants of the post have been called to our attention, but your committee have only recommended those which appear to be most urgent in consideration of the heavy expenditures imposed upon the Government by the existing war.

J. A. T. HULL, *Chairman.*

R. ADAMS, Jr.

FISCAL AFFAIRS, SUPPLIES, AND EXPENDITURES FOR CADETS.

The committee on fiscal affairs, supplies, and expenditures for cadets have completed their personal inspection of the affairs of Capt. Charles B. Hall, Nineteenth Infantry, treasurer of the Military Academy and quartermaster and commissary of cadets.

The methods and accounts were fully explained to them and they find them to be kept in so simple a manner that your committee could easily determine on their completeness. They especially commend the system of individual accounts kept with each cadet, by which he can learn at a glance what expenditures he has already made and what balance of his pay remains to his account.

The quartermaster and commissary storehouses were also inspected. The supplies contained in both departments were found to be ample in quantity and excellent in quality, with prices at retail in due proportion to the wholesale price.

Your committee commend in every way the efficient and economical administration of these two departments.

ROBT. ADAMS, Jr., *Chairman.*

ALEXANDER W. HOFFMAN.

HYGIENE AND ATHLETICS.

Your committee find that the sanitary condition of the Academy is excellent. A thorough examination of the cadets' hospital was made, and too much can not be said of the order, system, and neatness which we found, and due credit should be given to Maj. George H. Torney, surgeon in charge.

We find the condition of the gymnasium all that can be desired, and the careful training here given to the cadets most efficient.

WILLIAM T. FAIRCLOTH,

Chairman.

SIMON B. BUCKNER.

MASTER OF THE SWORD.

The sword master is also the instructor in gymnastics and swimming. He is a civilian appointed by the Secretary of War. The present incumbent has worked up an admirable course of gymnastics for the corps of cadets. His system of calisthenics has been adopted by the War Department for the use of the Army. He is required to preserve discipline and to exercise control of the cadets while under his instruction. It would greatly strengthen his hand if he should have military rank, and in view of the great and increasing importance of his department, the Board urges upon Congress the passage of an act giving the master of the sword the rank, pay, and emoluments of a first lieutenant of infantry.

The Board approves of and indorses the reports of the different committees, and urges upon Congress the appropriations suggested by the committee on buildings, grounds, and lights, and also of the amount mentioned by the committee on armament and equipment for the construction of a safe target in the mountain side for the use of the 8-inch modern gun in the seacoast battery.

The Board also urges upon the War Department a compliance with the recommendations made by the committee on armament and equipment in the changes and additions to the different batteries.

The Board is of the opinion that the cadets should receive instruction in the handling, and have imparted to them a thorough knowledge of modern high power, long range guns. As the batteries are at present constituted it is impossible that such instruction should be given them, and hence they are forced to enter the service upon graduation with little knowledge of the modern high-power gun.

Respectfully submitted.

SIMON B. BUCKNER,
President.

WILLIAM T. FAIRCLOTH,
Vice-President.

ALEXANDER W. HOFFMAN,
Secretary.

WILLIAM P. WALTON.

CHAUNCEY MCKEEVER,
Brigadier-General, U. S. A.

JOHN A. T. HULL.

ROBERT ADAMS, Jr.



UNITED STATES MILITARY ACADEMY.

1061



ANNUAL REPORT
OF THE
SUPERINTENDENT UNITED STATES MILITARY ACADEMY.

HEADQUARTERS U. S. MILITARY ACADEMY,
West Point, N. Y., September 19, 1898.

SIR: As Acting Superintendent of the United States Military Academy, I have the honor to submit the following report for the year ending September 1, 1898. Upon the departure of Brig. Gen. O. H. Ernst, United States Volunteers, to join the Army in the field, I assumed command of the Military Academy and post of West Point on June 11, 1898, and am still in the exercise of this command, the new Superintendent, Col. A. L. Mills, not having yet reported for duty.

PERSONNEL.

The number of officers and instructors present for duty at this post on September 1, 1898, was as follows: 7 professors, 1 associate professor, 44 commissioned officers, 1 chaplain, 1 master of the sword, and 1 teacher of music; a total of 55. See roster appended, marked "A."

The number September 1, 1897, was 64. This difference is accounted for by the following: Superintendent, surgeon, cavalry instructor, instructor of practical military engineering, and two instructors in department of modern languages not yet joined; one assistant instructor practical military engineering, in the field at Santiago; and one instructor department of philosophy, and one assistant to the quartermaster not appointed.

The number of cadets present and absent September 1, 1898, was 325, including one foreigner under instruction by special authority of Congress. The number in 1897 was 338, including one foreigner.

During the year 47 men were discharged for deficiency in studies, 1 discharged for deficiency in discipline, 8 resigned, and 59 were graduated, a total loss of 115, while there were admitted in all at the examination held in March, June, and August, 101, and 1 admitted by reappointment.

In the three examinations referred to there were appointed 311 candidates, including 117 alternates; of these 42 failed to appear and 159 were found not duly qualified, either mentally or physically, or both. Of the remaining 110 who passed, 15 were alternates whose principals also passed, and for whom there were, therefore, no vacancies, leaving 95 who were regularly admitted. Of those rejected by the medical board, 6 were subsequently admitted, 4 of whom were on probation.

The first class was graduated on April 26, by order of the War Department, in consequence of the war with Spain, and did not undergo the final examination prior to receiving their diplomas.

The number of cadets now authorized by law is 371, and the number of cadets at present 325, which leaves 46 vacancies, and this latter number as usual will be increased considerably during the present school year. The average number of vacancies in the corps of cadets at the beginning of the second term of the academic year (after the January examination) during the past five years was 74, from which it will be seen that in order to have the corps of cadets contain at all times the maximum strength (approximately) now authorized by law, and for which there are sufficient instructional and barracks facilities, a slight increase in the number of the annual appointments of cadets would be necessary. This has been recommended in many previous annual reports of the Superintendent of the Military Academy and by the recent and former Boards of Visitors, and is again recommended for your consideration.

ACADEMIC DEPARTMENTS.

There have been but few important changes in the operations of the various departments of instruction during the past year. Where improvements have been introduced they are noted in the appended reports of the various heads of departments.

In the department of tactics the scope of the course of instruction was considerably widened, and it was placed upon a more practical basis. Attention is invited to the report of the commandant of cadets, hereto appended and marked "B."

In the department of law two new text books, Fisher's Brief History of the Nations and Flanders's Manual of the Constitution, were substituted for Fisher's Outline of Universal History and for Andrews's Manual of the Constitution, which were not found to be well adapted to the needs of the Academy after full trial.

In the department of practical military engineering it was found necessary to suspend the usual course on April 26, on account of the departure of the instructor, his assistant, and Company E, Battalion of Engineers, for the seat of war. A supplementary course in practical military engineering was therefore outlined for the instruction of the cadets of the first and third classes during the summer encampment, under charge of Second Lieut. George Blakely, Second Artillery. In this course the cadets were taught the practical use of the new portable intrenching tools with which the battalion was equipped during the latter part of the summer, and subsequently had practice in the construction of hasty intrenchments in a tactical field exercise, carried out while on practice march.

The report and supplementary report of the instructor of practical military engineering are herewith appended and marked "C."

INSTRUCTION IN MILITARY HYGIENE.

During the summer encampment a course of lectures upon the subject of military hygiene was introduced. These strictly practical lectures were delivered to the first class by the surgeon, on days which could not be used for outdoor drills and exercises, and comprised the following subjects: Anatomy and physiology of the circulating and respiratory systems, hemorrhage, antiseptic surgery, the use of the first-aid packet, fractures and dislocations, and the emergencies requiring prompt non-medical attendance. Attention is invited to the report of the surgeon, hereto appended, marked "G."

THE LIBRARY.

During the year ending August 31, 822 volumes were purchased for the library and 838 volumes were presented to it, making an increase of 1,660 volumes. One hundred and twenty duplicate Government publications were returned to the Superintendent of Public Documents. The net gain during the year was 1,360 volumes, besides 380 pamphlets, making the total number of books in the library September 1, 1898, 41,638 volumes and 6,889 pamphlets. This is exclusive of a large number of maps and charts; these, it is proper to state, are almost entirely unavailable on account of lack of space in which to properly store or display them.

The pressing necessity for enlarging and reconstructing the library building has been emphasized in former reports, and full plans, specifications, and estimates for the work have been prepared.

The urgency of this work becomes greater each year, as is fully set forth in the report of the librarian, which is appended hereto and marked "D."

The recommendation contained in former reports that the salary of the assistant librarian be increased from \$1,200 to \$1,500 is renewed.

DISCIPLINE AND DRILL.

The discipline of the corps of cadets has been generally very good, with some exceptions, and the usual high standard of drill has been maintained.

ACCOUNTS AND SUPPLIES.

Attention is invited to the report of the quartermaster and commissary of cadets, hereto appended and marked "E."

The cost of subsistence during the year averaged 53 cents per cadet per day, which is slightly in excess of the cost of the past fiscal year, due to the advance in the cost of flour, etc., occasioned by the war. The quality and quantity of the food furnished has been satisfactory in every respect. The other supplies furnished to cadets were very satisfactory as to quality and cost.

During the summer encampment, campaign hats, leggings, gray flannel shirts, and rubber blankets were furnished to the entire battalion of cadets for the purpose of equipping them more suitably for field exercises and practice marches.

The present foot gear has not been found entirely satisfactory, and patterns of a more serviceable and comfortable shoe are now being carefully examined, with a view to improvement in this respect.

The plant of the cadet laundry has not been found satisfactory, and needs considerable improvement to make it perform well and promptly all of the work required during the summer months. An estimate of the cost of these necessary improvements has been carefully prepared, and is included in the annual estimate for the fiscal year.

BAND.

It is earnestly recommended that the Military Academy band, which is the only military band recognized and directly supported by the Government, be restored to the numbers and pay which it had before its reduction in 1877, and that the leader be given the pay and emoluments of a second lieutenant of infantry.

At the time of its reduction the band consisted of 1 teacher of music and 40 enlisted musicians, 10 of whom received \$34 and the remainder \$30 per month, with the usual allowances of enlisted men. Its present authorized strength comprises 1 teacher of music and 24 enlisted men. Of the latter, 6 receive \$34 per month, 6 \$20 per month, and the remaining 12, \$17, with the usual allowances of enlisted men. As these musicians must depend entirely upon their pay, having no facilities for increasing their meager compensation by engagements away from West Point, it is extremely difficult and almost impossible to obtain accomplished musicians for our only national military band.

MASTER OF THE SWORD.

Attention is invited to the recommendation submitted in the last annual report of the Superintendent and in the report of the Board of Visitors of 1898, concerning the status and pay of the very efficient and capable master of the sword and instructor of gymnastics and swimming, Mr. H. J. Koehler.

It would be wise to give this instructor, who is required to exercise control and maintain the discipline of cadets under his instruction, proper military rank, in order to strengthen his position and authority, and I recommend that Congress be requested to give him rank and pay of a first lieutenant of infantry.

WATER SUPPLY.

Work on the new reservoir and filter beds, except some minor improvements, was interrupted on April 23, on account of the departure of the officers and overseers connected with the work for the war; it was again resumed upon their return on September 4.

Estimates are submitted for the completion of the dam and filter beds, and of the roadways, fences, keeper's dwelling, and other improvements connected with these works.

Attention is invited to the report of the instructor of practical military engineering, hereto appended and marked "C."

BUILDINGS AND GROUNDS.

The erection and completion of the following public works were made during the year: New guardhouse at the south gate, public latrine, coal suspension cable way worked by electric motors from coal shed to new dock, ordnance boathouse, iron stairway at engineer barracks, besides other improvements and repairs from special appropriations proper for such purposes. The new dry dock and ferry slip will be completed by December 5 of this year.

It is recommended that the extra-duty pay of the men of the army service detachment, which was discontinued on April 26 last, under the provisions of section 6, act of Congress, published in General Orders No. 29, A. G. O., April 29, 1898, abolishing extra-duty pay, be restored not only for the future but for the period of the war with Spain, during which time it was discontinued. These men were enlisted to do specific work, for which, at the time of enlistment, they expected to receive additional compensation, and are deserving of the same. Attention is invited to the report of the quartermaster, hereto appended and marked "F."

MEMORIAL HALL.

Work upon the Memorial Hall is finished with the exception of the interior decoration and artificial lighting of the building by gas and electricity, funds for which are still available.

Before this magnificent edifice is ready for occupation it will be necessary to suitably furnish it, for which an estimate is now being carefully prepared and will be shortly submitted as a supplement to the annual estimates.

HEALTH.

The health of the command during the past year has been generally very good. Attention is invited to the report of the surgeon, hereto appended and marked "G."

COMPANY E, BATTALION OF ENGINEERS.

Company E, Battalion of Engineers, performed its usual multifarious and important duties most efficiently at this post until April 30, when it was ordered into the field. It participated in the Santiago campaign and returned here September 4.

CAVALRY DETACHMENT AND HORSES.

The cavalry detachment has performed the usual duties and is in a very good state of drill and discipline. It lost 23 enlisted men during the war by transfers, at their own requests, to cavalry regiments engaged in active service in the field, but these losses have since been made good and it is now up to its maximum strength.

At present the total number of horses available for cavalry instruction is 98, but 48 of this number are also required to furnish teams for the carriages of the field battery of instruction. This unavoidable use of the same horses for both saddle and draft purposes unfits them for both cavalry and artillery instruction, and should be remedied by the provision of 48 artillery horses and a detachment of artillerymen for noncommissioned officers and drivers, to be used for battery instruction only.

ARTILLERY MATERIAL.

It is recommended that all of the obsolete artillery material in the siege and seacoast batteries of instruction, part of which has already been discarded on account of its unserviceableness, be replaced by modern guns and that the field battery, comprising only four 3.2-inch guns and carriages, be increased by two guns, as the present battery of instruction is inadequate for the standing gun drills of the fourth class, which averages about 100 cadets.

For further details on this subject, attention is invited to the report of the commandant of cadets, marked "B."

ESTIMATES.

The estimates for the next fiscal year do not differ materially from those of last year. The most important items comprise the amounts needed for the improvement and reconstruction of the library building, for completing the construction of the filter beds and connecting them

with the new reservoir, completing necessary improvements to the water supply system, and for repair and remodeling the old army service barracks into a commissary storehouse.

MANEUVER TERRAIN.

The use of the ground on the reservation between the post proper and Highland Falls as a vegetable garden for the cadet mess has been discontinued, as this was not found to be profitable, and the ground, which is admirably adapted for maneuver terrain for the tactical exercises of cadets, will be gradually put in condition for that purpose.

I am sir, very respectfully, your obedient servant,

O. L. HEIN,
Lieutenant-Colonel of Cavalry, Commandant of Cadets,
Acting Superintendent.

The ADJUTANT-GENERAL UNITED STATES ARMY,
Washington, D. C.

LIST OF APPENDIXES.

- A.—Roster.
- B.—Report of commandant of cadets.
- C.—Report of instructor of practical military engineering.
- D.—Report of librarian.
- E.—Report of quartermaster and commissary of cadets.
- F.—Report of quartermaster.
- G.—Report of surgeon.

A.

UNITED STATES MILITARY ACADEMY.

WEST POINT, NEW YORK.

SUPERINTENDENT.

Col. ALBERT L. MILLS, captain and assistant adjutant-general, United States Volunteers; first lieutenant, First Cavalry. Absent; not yet joined.
Lieut. Col. OTTO L. HEIN, commandant of cadets; acting superintendent.

MILITARY STAFF.

Second Lieut. SAMUEL C. HAZZARD, First Artillery, adjutant of the Military Academy and of the post; recruiting officer; commanding post noncommissioned staff and band and detachment of field musicians; assistant to the quartermaster, and officer of police.

Maj. WILLIAM F. SPURGIN, Twenty-third Infantry, quartermaster of the Military Academy and of the post; disbursing officer; director of gas works; commanding detachment of army service men, quartermaster's department.

Capt. CHARLES B. HALL, Nineteenth Infantry, treasurer of the Military Academy and quartermaster and commissary of cadets.

First Lieut. GEORGE F. LANDERS, Fourth Artillery, commissary and treasurer of the post; in charge of post exchange.

Maj. WILLIAM L. KNEEDLER, brigade surgeon, United States Volunteers; captain and assistant surgeon, U. S. A., surgeon.

First Lieut. DOUGLAS F. DUVAL, assistant surgeon, U. S. A.

ACADEMIC STAFF.

Professors whose service at the Academy, as professor, exceeds ten years have the assimilated rank of colonel, and all other professors the assimilated rank of lieutenant-colonel.

DEPARTMENT OF TACTICS.

Lieut. Col. OTTO L. HEIN, captain, First Cavalry, commandant of cadets and instructor of tactics (June 15, 1897).

Capt. EDWARD ANDERSON, assistant adjutant-general, United States Volunteers (first lieutenant, Seventh Cavalry), assistant instructor of tactics.

First Lieut. GRANGER ADAMS, Fifth Artillery, senior instructor of artillery tactics; commanding company of cadets.

First Lieut. SAMSON L. FAISON, First Infantry, senior instructor of infantry tactics; commanding company of cadets.

Capt. ROBERT L. HOWZE, assistant adjutant-general, United States Volunteers (first lieutenant, Sixth Cavalry), senior instructor of cavalry tactics (joined September 2, 1898).

First Lieut. WILLIAM LASSITER, First Artillery, assistant instructor of tactics.

Second Lieut. DAVID M. KING, Fourth Artillery; on temporary duty; commanding company of cadets.

Second Lieut. JULIAN R. LINDSEY, Ninth Cavalry, assistant instructor of tactics; commanding company of cadets; commanding detachment of cavalry

DEPARTMENT OF CIVIL AND MILITARY ENGINEERING.

Gustav J. Fieberger, professor (May 4, 1896).

First Lieut. FRANCIS E. SHUNK, Corps of Engineers, assistant professor.

First Lieut. CHESTER HARDING, Corps of Engineers; First Lieut. JAY J. MORROW, Corps of Engineers, instructors.

DEPARTMENT OF NATURAL AND EXPERIMENTAL PHILOSOPHY.

Peter S. Michie, professor (February 14, 1871).
 Maj. Henry C. Davis, Third Regiment United States Volunteer Engineers (first lieutenant, Seventh Artillery), assistant professor.
 First Lieut. Wilmot E. Ellis, Fourth Artillery; First Lieut. Joseph T. Crabbs, Ninth Cavalry, instructors.

DEPARTMENT OF MATHEMATICS.

Edgar W. Bass, professor (April 17, 1878).
 Wright P. Edgerton, * associate professor (July 1, 1893).
 Second Lieut. George Blakely, Second Artillery, assistant professor.
 Second Lieut. Frank W. Coe, First Artillery; Second Lieut. William M. Cruikshank, First Artillery; Second Lieut. David M. King, Fourth Artillery; Second Lieut. Harry H. Stout, Sixth Cavalry; Second Lieut. Thales L. Ames, Third Artillery; Second Lieut. Samuel V. McClure, Seventh Infantry; Second Lieut. James W. Hinkley, jr., Fifth Artillery, instructors.

DEPARTMENT OF CHEMISTRY, MINERALOGY, AND GEOLOGY.

Samuel E. Tillman, professor (December 21, 1880).
 First Lieut. Richmond P. Davis, Second Artillery, assistant professor.
 First Lieut. George F. Landers, Fourth Artillery; First Lieut. Edward D. Anderson, Tenth Cavalry; First Lieut. Palmer E. Pierce, Thirteenth Infantry, instructors.

DEPARTMENT OF DRAWING.

Charles W. Larned, professor (July 25, 1876).
 Second Lieut. Jens Bugge, Third Infantry, assistant professor.
 Second Lieut. Charles H. Paine, Thirteenth Infantry; Second Lieut. Frederick W. Lewis, Twenty-second Infantry, instructors.

DEPARTMENT OF MODERN LANGUAGES.

Edward E. Wood, professor (October 1, 1892).
 First Lieut. Charles H. Hunter, First Artillery, assistant professor of the Spanish language.
 Second Lieut. Samuel C. Hazzard, First Artillery, assistant professor of the French language.
 Second Lieut. James M. Williams, Seventh Artillery; Second Lieut. Joseph L. Knowlton, Second Artillery; Second Lieut. Girard Sturtevant, Twenty-fifth Infantry; Second Lieut. Eugene P. Jervey, jr., Fifth Cavalry, instructors.

DEPARTMENT OF LAW AND HISTORY.

George B. Davis, lieutenant-colonel and deputy judge-advocate-general, U. S. A., professor (August 20, 1895). By assignment under act June 6, 1874.
 First Lieut. Frank G. Mauldin, Seventh Artillery, assistant professor.
 Second Lieut. Mathew C. Smith, Second Cavalry; Second Lieut. Samuel Hof, Sixth Cavalry; Second Lieut. Herbert A. White, Sixth Cavalry, instructors.

DEPARTMENT OF PRACTICAL MILITARY ENGINEERING.

Second Lieut. George Blakely, Second Artillery, senior assistant instructor.
 Second Lieut. Charles H. Paine, Thirteenth Infantry, assistant instructor.

DEPARTMENT OF ORDNANCE AND GUNNERY.

Capt. Lawrence L. Bruff, Ordnance Department, instructor (August 17, 1891).
 Second Lieut. Jay E. Hoffer, Third Artillery, senior assistant instructor.
 Second Lieut. William R. Smith, First Artillery, assistant instructor.

CHAPLAIN.

Rev. Herbert Shipman (April 22, 1896).

Herman J. Koehler, master of the sword (February 1, 1885).
 George Essigke, teacher of music (October 15, 1895).

* Associate professor, with the rank of captain.

PERSONNEL.

The following-named officers were detached or wholly relieved from duty at the Military Academy, upon the outbreak of the war with Spain or during the recent campaigns, to join the army in the field:

AT THE FRONT.

Brig. Gen. O. H. Ernst, United States Volunteers, colonel of engineers, Superintendent.

Associate Professor Wright P. Edgerton.

Maj. George H. Torney, surgeon, U. S. A. Relieved.

First Lieut. Charles H. Hunter, First Artillery.

First Lieut. Thomas H. Rees, Corps of Engineers. Relieved.

First Lieut. J. J. Pershing, Tenth Cavalry.

First Lieut. P. E. Traub, First Cavalry. Relieved.

First Lieut. Edgar Russel, Seventh Artillery. Relieved.

First Lieut. E. E. Winslow, Corps of Engineers.

First Lieut. Charles P. Echols, Corps of Engineers.

First Lieut. W. A. Bethel, Third Artillery (captain of volunteers).

First Lieut. P. E. Pierce, Thirteenth Infantry.

Second Lieut. J. T. Crabbs, Eighth Cavalry.

Second Lieut. H. M. Reeve, Third Infantry. Relieved.

Second Lieut. W. M. Cruikshank, First Artillery.

Second Lieut. W. R. Smedberg, jr., Fourth Cavalry.

Second Lieut. Samuel Hof, Sixth Cavalry. Relieved.

Second Lieut. F. LeJ. Parker, Fifth Cavalry. Relieved.

Second Lieut. Joseph Wheeler, jr., Fourth Artillery. Relieved.

Additional Second Lieut. H. B. Ferguson, Corps of Engineers.

ON DUTY AT CAMPS.

Maj. A. C. Girard, surgeon, U. S. A. (lieutenant-colonel of volunteers). Relieved.

Capt. James L. Lusk, Corps of Engineers (lieutenant-colonel of volunteers). Relieved.

Capt. James Parker, Fourth Cavalry (major of volunteers).

Capt. W. E. Wilder, Fourth Cavalry (colonel of volunteers). Relieved.

Capt. J. B. Bellinger, assistant quartermaster, U. S. A. (lieutenant-colonel of volunteers). Relieved.

Capt. F. A. Winter, assistant surgeon, U. S. A. Relieved.

First Lieut. J. H. Beacom, Third Infantry (captain of volunteers).

First Lieut. J. T. Thompson, Ordnance Department (lieutenant-colonel of volunteers). Relieved.

First Lieut. H. C. Davis, Seventh Artillery (major of volunteers). Relieved.

First Lieut. William Weigel, Eleventh Infantry. Relieved.

Second Lieut. E. B. Cassatt, Fourth Cavalry. Relieved.

Second Lieut. C. W. Castle, Sixteenth Infantry. Relieved.

RELIEVED ON ACCOUNT OF EXPIRATION OF TOUR OF DUTY.

Capt. Charles F. Mason, assistant surgeon, U. S. A.

Capt. William B. Gordon, Ordnance Department.

B.

HEADQUARTERS UNITED STATES CORPS OF CADETS,
West Point, N. Y., September 18, 1898.

The ADJUTANT, UNITED STATES MILITARY ACADEMY.

SIR: In compliance with instructions in Circular No. 35, current series, headquarters United States Military Academy, I have the honor to submit the following report on the work of the department of tactics during the year ending September 1, 1898. This, in general terms, embraced instruction in drill and tactics, instruction in discipline, and instruction in military administration.

INSTRUCTION IN DRILL AND TACTICS.

(a) *Practical*.—The course of practical military instruction embraced the drill of infantry, cavalry, light and horse artillery, and siege and seacoast artillery; tactical and minor tactical exercises of infantry and cavalry; practice marches of infantry, cavalry, and light artillery; target practice with rifle and revolver, and with field.

siege, and seacoast guns; fencing with the foil, broadsword, and bayonet; gymnastics and swimming; instruction in castrametation; cavalry and artillery stable duties, and practice in some of the duties especially devolving upon these arms.

The effort was made, and I believe successfully accomplished, to widen the scope of the course of practical military instruction—especially that held during the summer encampment—and to place it upon a more practical basis; also to carry out the principal and most important aim of this department, the promotion of the self-reliance and confidence, sense of responsibility and development of character of cadets, in order to prepare them more fully for the performance of the duties devolving upon the young officer when he first joins his regiment or corps, and which he is expected to be able to enter upon at once.

To effect this, it was found necessary to rearrange the summer programme of military instruction so as to give more time for the work to be accomplished and to give more opportunities for cadets, especially the privates of the first class, to exercise the command and responsibilities devolving upon officers and noncommissioned officers. This was done by suspending troop parade, except on Sundays, and by postponing guard mounting until immediately after evening parade; by dividing the forenoon into two drill periods, first, from 7.10 to 8.30 a. m., and, second, from 9 to 10.45 or 11 a. m., or even later, if desirable or necessary to obtain the best results, and by making the instruction in these drill periods interchangeable; by reserving an entire day of each week for a practice march, and by placing the privates of the third class on the roster for corporal of the guard and those of the first class on the permanent roster for officer of the day and guard, and requiring the latter to frequently act as captains and lieutenants at the various drills and exercises of each arm.

More time and attention were given to exercises in applied tactics and minor tactics, on varied ground in and beyond the reservation, and the practice marches were generally combined with field exercises. These exercises and practice marches were as follows:

June 21.—Cavalry practice march of 11 miles, and exercises in minor tactics, stable duties performed on return (first class); duration about nine hours.

June 24.—Cavalry reconnaissance (first class); duration about nine hours. Exercise in infantry outpost duty (third class); duration about two hours and twenty-four minutes.

June 27.—Outpost duty and patrolling (third class); duration three hours and thirty-five minutes.

June 28.—Advance guard and rear guard duties (third class); duration three hours and thirty-five minutes.

June 29.—Infantry practice march (third class); about seven and one-half miles.

June 30.—Advance guard exercise and infantry attack (third class); duration two and one-third hours.

July 1.—Light-battery practice march of about 12 miles and target practice with projectiles (first class). All duties pertaining to harnessing, hitching, and care of horses (grooming, watering, feeding, and bedding down) were also performed by the first class. On this march the cadets acted as drivers, noncommissioned officers, and officers. Infantry practice march of three hours (third class).

July 8.—Infantry practice march, with exercise in advanced and rear guard (first and third classes); duration, four and three-fourths hours.

July 15.—Infantry practice march, with exercises in minor tactics and castrametation (first, third, and fourth classes); duration, seven and three-fourths hours.

July 22.—Infantry practice march and field exercises (first, third, and fourth classes); duration, four and one-half hours.

August 8.—Infantry practice march and field exercises (first, third, and fourth classes); duration, four and one-half hours.

August 21.—Infantry practice march to Camp Townsend, Peekskill, where a bivouac was established and field exercises carried out, consisting of an attack of three companies against one in an entrenched position and attack of a defile held by one company by three companies (first, third, and fourth classes); duration, twenty-seven hours.

As a preparation for practical field work, cadets had been given preliminary instruction in the duties of advanced guard, rear guard, outposts, etc., having been supplied with a manual of exterior guard duty, which they were required to read and study in camp.

Proper instruction in extended-order drill of infantry and in minor tactics has been attempted, with but little success, during the autumn and spring drill terms, on account of the insufficiency of time available and the lack of a suitable maneuver terrain in the vicinity of the post for this purpose; but the first-mentioned difficulty can be overcome by giving this instruction during the summer encampment, and the latter inconvenience be met in the future by the utilization of the ground formerly used as a cadet garden, which is now being put in order for this important instruction.

The course in rifle firing for all classes was extended and more systematically and progressively carried out than heretofore.

This instruction was facilitated by the preparation and issue to cadets of a small manual, *Outline of Instruction in Small-arms Firing*, based on *Small-arms Firing Regulations*.

Instruction in aiming, pointing, and gallery practice began and ended with the fourth class during the summer encampment; the third class had short and mid-range practice, and the first class mid-range practice only, the target range not having been yet prepared for long-range and group firing. Work on the range is now being done, however, and it will be ready for this practice during the autumn and spring terms.

The idea followed in this course was to give cadets a complete outline course of the target practice carried out in the service, and also some preparation for the duty of musketry instructors.

Revolver practice (dismounted) was given to cadets of the first class, it being impracticable to have mounted practice, on account of the limited time available for this purpose.

SPECIAL CAVALRY INSTRUCTION OF THE FIRST CLASS DURING THE SUMMER ENCAMPMENT.

Theoretical.—Saddles and saddling; bits and biting; the saddle packed; age of horses to 20 years; nomenclature of horse; points of the horse; blemishes and defects, etc.; the foot and its shoe (seven lessons—lectures and explanations).

Practical.—Manual of the carbine mounted; folding saddle blanket; rolling overcoat; making packs; packing saddle; troop inspection armed with carbine; saber and pistol practice; march from 9 a. m. till 4 p. m., 11 miles, and practical care of horses (grooming, watering, feeding, and bedding down) on return; outpost duty; fighting on foot; age of horses.

At each drill cadets were required to saddle and bridle their own horses and to unsaddle and unbridle on their return. All theoretical instruction was followed by such practical application as would impress the subject on their minds.

(b) *Theoretical.*—The theoretical instruction imparted in the department of tactics comprised recitations in the drill regulations of infantry, cavalry, and artillery, according to the following programme as laid down in the regulations United States Military Academy:

First class, fourth year, cavalry drill regulations. Every other week day, Saturdays excepted, from November 1 to March 31, alternating with drawing. Ten lessons each of one hour.

Second class, third year, infantry and artillery drill regulations. Every other week day, from November 8 to January 1, alternating with chemistry.

Ten lessons in infantry drill regulations and 10 lessons in artillery drill regulations, each of one hour.

The allotment of 10 lessons only for theoretical instruction in infantry, cavalry, and artillery drill regulations merely permits of hurried and insufficient instruction in these branches, and in my opinion is totally inadequate in comparison with the importance and extent of these subjects.

Some theoretical instruction in minor tactics to supplement that taught in the drill regulations was imparted during the summer encampment (on days not available for outdoor work) by means of lectures, by reading the *Manual of Outposts*, *Advanced and Rear Guards*, etc., prepared for this purpose for the use of cadets, and by the solution of simple tactical problems.

The theoretical artillery instruction imparted here is devoted entirely to field artillery, and the equally important subject of coast artillery is neglected. There is now an authorized manual of coast artillery, and this instruction should be considered as necessary for cadets as any other part of their military education.

The theoretical course is far from satisfactory in this department owing to the insufficiency of time for the work prescribed and the unsuitable time of the year designated for this instruction.

The text-books used are the *Drill Regulations of Infantry, Cavalry, and Artillery*, comprising matter much of which is duplicated in the department of military engineering. The theory and practice of tactics and minor tactics should go hand in hand; theory should precede practice, or at least not follow it, as is the case now.

It would seem to be a better and more logical arrangement, if the department that has entire charge of the practical work in these branches, should alone be intrusted with the theoretical work, and the advisability of transferring so much of the course of the art and science of war as embraces organization, tactics, and minor tactics and marches, to what is known as the course of infantry, cavalry, and artillery drill regulations, which course comprises the only text-books on those subjects really authorized by the War Department, for the information and guidance of the Army, is in my judgment worthy of consideration.

Some little knowledge of the theory of musketry instruction is also a necessary preliminary to target practice, and this has been acquired by cadets by means of a little pamphlet (*"Outline of instruction in target practice"*) prepared for their use.

GYMNASTICS, SWIMMING, AND FENCING.

GYMNASTICS.

The physical training of cadets consisted, as usual, of a progressive and systematic series of exercises and combinations, in which all movements of questionable value are eliminated, and in the execution of which the chance of bodily injury and over-exertion are minimized.

The course for the fourth class was arranged as follows:

First period, October 1 to December 31.

Second period, January 1 to April 1, three lessons weekly, each of forty-five minutes duration.

The members of the upper classes received no physical training, except those who at the annual anthropometric measurements failed to reach the required standard and were given anthropometric deficiency cards. Of these, 16 were members of the first class, 25 of the second class, and 18 of the third class.

In my opinion, all cadets should be required to attend a physical drill of from ten to fifteen minutes daily, as soon after reveille as practicable before the beginning of the day's work. That this would be of great benefit, particularly to those cadets who take no exercise whatever, is beyond question.

The master of the sword, in his report to me upon the advisability of a short daily physical drill for cadets of all classes, says:

"The fact that cadets of the upper classes do not receive sufficient physical exercise to offset the drain on their mental faculties has often been commented upon.

"Probably at no time are cadets in better physical condition than at the close of their first year. This, together with the fact that it requires but little exercise to keep men who are in sound physical condition in that condition, is a strong argument in favor of the instruction of this drill.

"The main object, then, of a drill of this kind is a hygienic one rather than one of physical development. To obtain the best results the drill should be conducted in such a manner that its effect will be stimulating and exhilarating, but never fatiguing.

"Though but of short duration, it is long enough to accelerate the circulation, stir up the organs of secretion, quicken the mind, and bring relief to a brain made heavy by an evening's close application to study. Furthermore it is believed that it would materially decrease the number of slight, yet annoying ailments, which are directly traceable to sluggish circulation and stagnant secretory organs."

SWIMMING.

Instruction in swimming was given to the entire fourth class, and to 9 members of the third class and 3 members of the first class who had failed to qualify in their first and third years.

FENCING.

Instruction in fencing was imparted to the members of the fourth class only, as usual, according to the following programme:

First period (October 1 to December 31). Fencing with foils, three lessons weekly, each of forty-five minutes.

Second period (January 12 to March 15). Fencing with sabers, two lessons weekly, each of forty-five minutes.

Third period (March 15 to May 1). Fencing with bayonet, two lessons weekly, each of forty-five minutes duration; with foils, one lesson every other week, each of forty-five minutes duration; with saber, one lesson every other week, each of forty-five minutes duration.

Fourth period (May 1 to May 31). Fencing with foil, saber, and bayonet, each one lesson per week of forty-five minutes duration.

ADMINISTRATION.

The course in military administration consisted of—

Two lectures on instruction of recruiting officers and reports and returns pertaining to recruitment.

Two lectures on duties of post adjutant, post treasurer, and post exchange.

Two lectures on company records.

Two lectures on the ration.

Two lectures on duties pertaining to the Quartermaster's Department.

Two lectures on Subsistence and Ordnance Departments.

Two lectures on company organization.

One lecture on money accountability, etc.

One lecture on personal reports; or

One lecture on each subject to each half of the second class, divided into two sections for this purpose.

There is a pressing need for correct instruction to cadets in reference to the requirements of military etiquette, customs of the service, etc., which has hitherto not been given sufficient attention, but which will be imparted hereafter in a series of lectures to the first class. This work would be greatly facilitated if a reference manual could be prepared for this purpose, not only for use at the Military Academy, but also to assist the young graduate before and after he joins his corps or regiment.

ARTILLERY MATERIAL.

Field.—The field battery of 3.2-inch breech-loading rifle guns, used for the standing gun drill of the fourth class, has only four guns and should be increased by two guns, and at least four 3.6-inch breech-loading rifle field mortars should also be provided for use in the instruction of the fourth class.

Siege.—The two 5-inch breech-loading siege rifles on hand should be provided with proper platforms, and the carriages of these guns be completed by the addition of hydraulic recoil checks.

It is also recommended that the present siege armament be increased by two 7-inch breech-loading rifle mortars and by two 7-inch breech-loading rifle howitzers, in order that the instruction in siege artillery may be had with each type of siege guns.

The armament of the seacoast battery should be increased by one 8-inch breech-loading rifle mounted on a disappearing carriage, and one 12-inch breech-loading rifle mortar on a Gordon carriage, in order that cadets may receive instruction in all types of modern guns and mortars.

ARTILLERY HARNESS.

It is recommended that a set of artillery harness of leather of natural or russet color may be made for the field battery at this post. This leather is more easily kept clean and in proper condition than black leather, a matter of considerable importance here, on account of the very limited number of men and small amount of time at their disposal for such work.

HORSES FOR CAVALRY AND ARTILLERY INSTRUCTION.

The total number of horses at present available for cavalry instruction is 98, of which 48 are also required in order to furnish teams for the field battery of instruction. The system in vogue here, of using the same horses for saddle and draft purposes, is radically wrong and should be abandoned. This could be accomplished by providing 48 artillery (draft horses), and a small detachment of noncommissioned officers and enlisted men of the artillery arm, to care for and train these horses, and to furnish instructed noncommissioned officers and drivers for cadet drills, so that the light artillery instruction can be made more thorough than is possible under existing conditions.

My senior assistant in charge of artillery instruction, First Lieut. Granger Adams, Fifth Artillery, reports as follows on this subject, and I fully concur in his opinion:

"One great fault arising from the present system is the lack of instructed noncommissioned officers to teach individual drivers and act as chiefs of carriage at the drivers' drills. It is impracticable to instruct drivers at the same time as cadets, and at other drills there are at present no chiefs of section to control the drivers of the separate teams. It is impossible for one instructor to properly observe and control the 24 drivers of the battery, unassisted either by chiefs of platoon or noncommissioned officers. The duties of the men of the cavalry detachment are, and have always been, so heavy that the only separate instruction which can be given drivers is on the drill days for cadets, during the hour just preceding the cadet drill; and during those months when cadets do not receive artillery instruction neither men nor horses receive any artillery training whatever. Under such conditions properly trained drivers and horses are impossible.

"In service it requires months of continued practice, under the constant supervision of an instructed noncommissioned officer, to make what is considered a competent driver from a recruit.

"In the cadet instruction battery it is a common occurrence, unavoidable under existing conditions, for a man to appear mounted as a driver at a cadet drill, who never before sat in an artillery saddle, who knows nothing of artillery driving, and nothing even of the meaning of the commands he hears.

"Other plans may be formed whereby the present system may be changed without additional men and horses, but they are only makeshifts and not of real value, resulting either in separating the horses from the men who should care for and

drive them, or in using the horses for purposes foreign to their intended uses and for which they should be in constant training.

"The high state of efficiency attained by men and horses under proper conditions and training was well shown by a platoon of light artillery at the military tournament in New York last winter, an efficiency impossible except where men and horses both are trained continually for their proper work and not even imagined by cadets, whose only experience is with the improvised battery with which they are familiar.

"The matter of the increased expense is not worthy of consideration in comparison with the benefits to be gained.

"If this instruction is to be given to cadets, it should be of the best and on a par with that in other branches at the Military Academy.

"Under the present system cadets graduate from the Military Academy never having seen an artillery horse or an artillery driver. As already noted, they continually see recruits sent to drill as drivers, and because from extreme care and the slow gaits necessarily maintained no accidents occur, it follows naturally that they should get the opinion that no special training is necessary; that any horse which will work in a collar is good enough for an artillery team horse, and any man who can ride fully capable of driving a pair in an artillery team.

"It is needless to say that such impressions formed by cadets, and carried away with them, are hurtful to the service, since many do not have the opportunity later to observe how untrue were the object lessons in field artillery which were presented to them as cadets."

DISCIPLINE.

The discipline of the corps of cadets was strictly enforced, in accordance with the requirements of the Regulations, United States Military Academy, and though there have been but very few serious breaches of discipline, and though there was a marked improvement in discipline in general, still the highest standard has not yet been reached, in my opinion.

Its proper maintenance depends in no small degree upon the conscientious cooperation of the cadet officers, noncommissioned officers, and privates of the first class (who are more frequently required to act as officers than heretofore) with the officers of the department of tactics; and in fact the discipline of the corps has been placed more in the hands of the former than has formerly been the case, but the increase in responsibilities has been properly attended with increased privileges.

The discipline has also been improved by intrusting the preliminary instruction of the new cadets entirely to the officers of the first class, best qualified to carry out this most important work under the constant and ever-watchful supervision of the tactical officer in charge, and their preparatory physical training has been handed over to the master of the sword, who is best qualified to impart it.

The very considerable license permitted cadets for many years in certain entertainments, known as the "Color-line entertainment," "Hundredth-night performance," etc., has been very properly curtailed, by excluding at such entertainments all reference, either in disapprobation or praise, to commissioned officers on duty at the Academy or elsewhere, all of which has been very injurious to discipline.

Vigorous measures have been taken to repress any and all attempts at any form of hazing.

After many years of experience at the Military Academy as a cadet, tactical officer, commandant of cadets, and Acting Superintendent, and careful study and observation of the system of discipline enforced here, I am of the opinion that there is an urgent necessity for a careful revision of the schedule of punishments now in force, and that the cancellation of punishment by means of pledges should be abolished. By the present system some of the punishments awarded for offenses are so mild as to be even nondeterrent; and many, especially those adjudged for the most serious offenses against discipline—as disrespect, hazing, insubordination, disobedience, neglect of duty, etc.—are entirely inadequate, and give the cadet a wrong impression of their gravity. In my opinion cadet officers and privates of the first class, acting as assistant instructors or officers at drill and other practical instruction, ceremonies, etc., as officer of the day and officer of the guard, *should be marked for their efficiency, attention to duty, and soldierly qualities. Proper credit, based on marks, should be given them in their class standing, and this, together with the value given to discipline in the general merit roll and to the drill regulations of the three arms, should be raised to at least the relative value of mathematics.*

CONCLUSION.

In conclusion, I wish to express my highest appreciation of the earnest, intelligent, and faithful assistance I have received from the officers of the department of tactics, more especially First Lieut. Granger Adams, Fifth Artillery; First Lieut. J. H. Beacom, Third Infantry; First Lieut. S. L. Faison, First Infantry; Second Lieut. J. R.

Lindsey, Ninth Cavalry, and Second Lieutenant George Blakely, Second Artillery, in charge of instruction in practical military engineering during the summer encampment.

I am, sir, very respectfully, your obedient servant,

O. L. HEIN,
Lieutenant-Colonel, and Commandant of Cadets.

C.

WEST POINT, N. Y., *September 8, 1898.*

THE ADJUTANT, UNITED STATES MILITARY ACADEMY,
West Point, N. Y.

SIR: I have the honor to submit the following report upon the different branches of work in this department during the year from September 1, 1897, to August 31, 1898, as far as it came under my cognizance. This work was under the charge of Capt. James L. Lusk, Corps of Engineers, detached from the Military Academy August 31, with me as his assistant. As we both left the post with Company E, Battalion of Engineers, for service in the field, April 30, 1898, and continued absent during the remainder of the period covered by this report, it, in all matters except those relating to the company, pertains only to the time prior to April 30, 1898.

COMPANY E, BATTALION OF ENGINEERS.

This company until April 30, 1898, furnished a daily guard detail of 10 men, kept its barracks and vicinity in repair and police, cultivated its garden, kept the ponton trains and cadet boats in repair, constructed two new ponton boats, and kept the siege, seacoast, and mortar batteries with Fort Clinton and Battery Knox in good order and repair. In connection with the waterworks and filter, it furnished field parties for the surveys and construction, and two noncommissioned officers as overseers of civilian working parties; and at critical times the company furnished fatigue parties to prevent overflow of jetties and to repair breaks and stoppages in pipe lines.

It furnished three teachers for the post school for soldiers' children and the same number for the post school for enlisted men.

The company left this post with 3 officers and 100 enlisted men on April 30, 1898, for duty in the field. Joined the Fifth Army Corps at Tampa, and as a part of that corps participated in the entire Santiago campaign, embarking at Santiago to return to the United States on August 22, and returned to this post September 4, 1898.

PRACTICAL MILITARY ENGINEERING.

During October, 1897, and April, 1898, the classes of 1898 and 1899 were under instruction and received instruction in the following classes of work:

- Signaling with flag and heliograph.
- Ponton bridge by successive pontons.
- Making fascine.
- Making brush gabion.
- Making hoop-iron gabion.
- Making hurdle.
- Abatis.
- Making and planting palisade.
- High and low wire entanglements
- Barrel revetment.
- Brush gabion revetment.
- Hoop-iron gabion revetment.
- Sand-bag revetment.
- Breech-loading gun epaulement, full scale.
- Breech-loading gun epaulement, scale of one-sixth.
- Flying trench, full scale.
- Flying trench, full scale, one-sixth.
- Shelter trenches, various forms.
- Double sap, scale one-sixth.
- Single sap, scale one-sixth.
- Siege-gun platform.
- Howitzer platform.
- Mortar platform.
- Profile and deflade.

NEW FILTER BEDS.

Work on these was in operation September 1, 1897, and was continued until stopped by cold weather, December 18, 1897; however, during this period masonry work was much delayed by the slowness of the contractors in delivering cement. Work was resumed March 18, 1898, and continued until stopped, April 28, by orders requiring the departure for the war of all the officers and overseers connected with the work. At that date all excavation had been completed. The north, west, and south walls were completed. The foundation of valve chambers and clear-water wells and the walls around them had been laid, and these walls commenced, and the valves and piping of these chambers placed in position. Part of the filling had been placed against outside of walls.

Owing to the cessation of the work when in full operation, for the reasons mentioned above, about \$7,200 of the appropriation of \$23,000 for the fiscal year ending June 30, 1898, remained on June 30 unexpended, and will have to be turned back into the Treasury. To complete these filters a reappropriation of this amount will be necessary, and also an additional amount of about \$800 for the care and preservation of the unfinished work during the coming winter.

NEW SUPPLY MAIN.

Work on this was in operation September 1, 1897, under charge of post quartermaster, and was soon completed.

NEW CROW-NEST PIPE LINE.

Work on this was commenced upon completing the above, and was completed before cold weather. This line connects the new Crow-Nest reservoir and the old Crow-Nest pipe line, joining the latter near Sinclair pond.

Both these lines have been covered for their entire length with a frost protection of not less than 4 feet of earth. This required, in the case of the new supply main, considerable work at the creek crossing below the new reservoir, along the banks of this creek, through the Kinsley orchard, and at the descent to the main road near the Kinsley gate.

NEW RESERVOIR.

On September 1, 1897, the height of water in new reservoir was 324.4. During the early part of this month the waste valve was kept open a few turns to lower the water so as to be out of the way of work on siphon pipe and spillway, and it was until October 1 kept open a little at nights so as to about balance the inflow. Height October 1, 320.8; November 1, 320.5; December 1, 322.6.

The water rose to height of weir of spillway 326 and overflowed for the first time December 20, and continued to overflow until March 20, reaching the maximum overflow of 4 inches deep February 20. After the reservoir cleared of ice, samples of the water were taken from different depths. All samples were free from taste or odor and clear and transparent except those from extreme bottom, which contained a small amount of matter in suspension; accordingly the waste valve was opened and kept open so as to waste water from the bottom rather than the top. As the water ceased to overflow, the waste valve was partly closed, and was for the remainder of the period until April 28 kept so as to about balance inflow and keep water a few inches below weir. Upon cessation of work this valve was left closed. The water in reservoir at that date was apparently in the finest condition and fit for use.

During the period September 1 to April 30 the work on the reservoir and vicinity consisted in—

The completion of spillway, the unfinished masonry work being laid and pointed and the slopes sodded.

The completion of paving of dam and the arrangements for draining at the ends.

The grading of west approach to dam and the road over spillway culvert and the sodding of banks at this point.

The construction of a siphon pipe line to draw water from different depths and its connection with service main. The connections of this siphon within reservoir for drawing water at low levels have not yet been placed, as it was not considered desirable to draw water down for this purpose only.

The grading of slopes below dam and the arrangement of a channel to carry off swamp drainage and waste from spillway without washing away earth covering of service main.

Replacing the temporary jetty channel through old swamp site by a permanent

channel under which the swamp drainage is carried in a pipe culvert, connecting this new jetty channel with reservoir by a masonry entrance basin.

Raising the grade of road along west side of reservoir where it was but little above flow line.

The work still to be done at reservoir consists in the erection of fences and parapet walls over dam and in dangerous places, grading of east approach, and the removal of shallow flowage along east side.

WATER SUPPLY.

During the period from September 1 to April 30, owing to abundant rains, it was not necessary to draw on Round Pond, the supply of water being obtained from Cascades and Crow-Nest streams with the slight assistance during part of September and October of a small amount from the new reservoir.

A new reservoir of small capacity, with dam, culverts, spillway, intake, valve chamber, etc., complete, has been constructed on the Crow-Nest stream about a quarter of a mile above the old one; this in order to get above the flow line of new reservoir and thus to be able to turn this, the best water on the post, into the new reservoir. This has been connected by a new 8-inch pipe line with the old pipe line, and hence is now available for use.

During the month of February the intake at Cascades, which had been injured by stones and bowlders, became stopped by leaves and sticks in the heavy flow after a sudden thaw. After vain attempts to clear it at the spot Round Pond was turned on for a few hours and the back pressure apparently cleared away the obstruction by pushing it back into the Cascades stream. However, as was afterwards discovered, part of the matter in the pipe was washed down the pipe and lodged in the branch leading to new reservoir. While the Cascades was kept running into Delafield no further trouble was experienced, but upon attempting to turn it into the new reservoir the material which had lodged in that pipe jammed and the increased pressure burst the Cascades pipe line, opening an old crack about 1,000 feet west of Delafield Pond. This break was first repaired and then attention was given to the jam which, by alternating pressure and heat, was washed down through the old filter house and was found to consist of leaves, sticks, trash, and lumps of ice. Both of these operations were performed by the enlisted men of the engineer company.

During March and April work was in operation on the frost protection for the line from new reservoir to Delafield and the pipe lines westward. The retaining walls for this fill were nearly completed, and considerable earth had been put in place when work was stopped.

Very respectfully, your obedient servant,

E. EVELETH WINSLOW,
Lieutenant of Engineers, U. S. A.,
Instructor Practical Military Engineering.

WEST POINT, N. Y., August 27, 1898.

The ADJUTANT, UNITED STATES MILITARY ACADEMY,
West Point, N. Y.

SIR: I have the honor to submit the following report of the instruction in practical military engineering, signaling, and mechanical maneuvers conducted by me during the summer encampment of the corps of cadets of 1898.

Instruction was given in practical military engineering and signaling to the first and third classes, and in mechanical maneuvers to the first class only. The ponton train was not available, nor were tools for field work at hand during the early part of the summer. Lectures and work with models were resorted to therefor, that the course of instruction might be carried through on the usual lines.

PRACTICAL MILITARY ENGINEERING AND SIGNALING.

The following is a detailed account of the instruction given in these branches:

June 24.—The entire first class was taken on a mounted reconnaissance. The purpose of the reconnaissance was to select defensive positions, and locate sites for camping and maneuvers. One-half the class reconnoitered on the right bank of the Hudson River for a radius of from 12 to 15 miles from West Point; the other half crossed the river and examined the left bank. Each half of the class was subdivided into four parties, which operated independently, under charge of a cadet selected for

his skill in topographical drawing. The work on the West Point side of the river was under the direction of Lieut. W. R. Smith, First Artillery, and I supervised the work on the Garrison side. Each cadet made his own sketch of the road, and the leaders of parties turned in written reports in addition to sketch. The parties set out at 7.45 a. m., and returned at 5 p. m.

July 5.—Lecture to first and third classes (separately) in Academic building on shelter trenches. Profiles of trenches given on blackboard (one hour to each class).

July 6.—Examined first class on foregoing lecture, and explained regular field works (in Academic building). (One hour.)

July 12.—Third class in cordage. The cadets were individually instructed and examined in the more important knots, lashings, and splicings. (Time, three and a half hours.)

July 13.—First class in cordage. Instruction on same lines as above. (Time, three and a half hours.)

July 18.—Third class in engineering. The class was taken to engineer storerooms and instructed by models in the character, dimensions, and construction of revetments used in field works, in the obstacles employed, and in the profile of the trenches used in siege work. This was supplemented by an explanation of trenches, revetments, and obstacles from the material in Fort Clinton.

The ponton bridge of the United States advance-guard train and United States reserve train was constructed from models. Spar bridges were also constructed by cutting sticks and using cord for lashings. (Time, three and a half hours.)

July 26.—The first class was instructed in advance-guard formations, and simple problems were set and worked out by sections of the class using the Kriegspiel map and blocks. Instruction also given in signaling, assisted by Lieut. C. H. Paine, Thirtieth Infantry. (Time, three and a half hours.)

July 27.—The third class was instructed on precisely the same subjects and in the same manner as the above (July 26). (Time, three and a half hours.)

August 2.—First class in signaling, with Lieutenant Paine assisting. (Time, three and a half hours.)

August 3.—Third class in signaling, with Lieutenant Paine assisting. (Time, three and a half hours.)

August 15.—One-half third class in intrenchments. The shelter trench for one rank kneeling was thrown up, using the intrenching tools which had been furnished the corps. (Time of drill, one hour and forty minutes.)

August 16.—The second half of third class in intrenchments. The trench already constructed was widened to 5 feet to accommodate two ranks kneeling. (Time of drill, one hour and forty minutes.)

August 17.—Entire first class in intrenchments and in signaling. Shelter trenches were constructed for one rank kneeling, two ranks kneeling, one rank standing, and one rank lying down. (Time of drill, one hour and forty minutes.)

August 22.—While in camp at Peekskill during a practical march, Company A of the battalion under my direction threw up a trench for one rank kneeling at one extremity of the State camping grounds, making the trench about 125 feet in length. This trench was defended against an attack by the other three companies of the battalion, the attacking companies starting near the other end of the grounds, about three-quarters of a mile distant. The trench was constructed in three-quarters of an hour with the intrenching tools carried by the cadets as part of their equipment. In constructing this trench the fourth class, though without previous instruction, was employed along with the other classes. The trench was 1½ feet deep and 2½ feet wide, a berm of 1 foot was left, and the mound made 1½ feet high. The side towards the enemy was covered with green weeds, branches, and soda, to make the line of intrenchments indistinguishable at a distance. This device succeeded.

MECHANICAL MANEUVERS.

Instruction in mechanical maneuvers was given to the first class only. This work was conducted in Fort Clinton, and, besides instruction in cordage, blocks, and tackle, it included the practical use of the siege and garrison gin, hydraulic jacks, gun lift, truck, and way planks.

The time given to these maneuvers was as follows: July 7, three and one-half hours; July 14, three and one-half hours; July 21, three and one-half hours; July 29, three and one-half hours; August 4, three and one-half hours; August 12, one hour and forty minutes; August 18, one hour and forty minutes.

Very respectfully, your obedient servant,

GEORGE BLAKELY,
Second Lieutenant, Second Artillery.

D.

LIBRARY UNITED STATES MILITARY ACADEMY,
West Point, N. Y., August 31, 1898.

The ADJUTANT, UNITED STATES MILITARY ACADEMY.

SIR: I have the honor to submit the following report in accordance with the provisions of Circular No. 35, Headquarters United States Military Academy, West Point, N. Y., August 11, 1898.

The increase of the library during the past year is exhibited in the following statement:

Number of volumes in library August 31, 1897.....	40,098
Number of volumes purchased up to August 31, 1898	822
Number of volumes presented to the library to August 31, 1898.....	838
<hr/>	
Making a total of.....	41,758
Number of duplicate Government publications returned to Superintendent of Public Documents	120
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Number of volumes added by binding pamphlets and periodicals.....	41,638
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Making a total of bound volumes of.....	41,938
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Number of pamphlets in library August 31, 1897.....	6,509
Number of pamphlets added during year.....	380
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Making a total of pamphlets.....	6,889

The card cataloguing of the books and pamphlets of the library has been continued, especial attention having been paid to the Government publications, which had heretofore received but little attention.

The attention of the Superintendent is respectfully called to the pressing necessity of the renovation of the library building in accordance with the plans proposed and already prepared. The defects of the present building have been specified in my last report, to which I respectfully refer. At present, with the very limited force of two attendants—the assistant librarian and the private soldier—it is difficult to carry on the work successfully so that all the benefits of the library may be properly utilized by cadets and officers. I renew my recommendation for an increase in the compensation for the assistant, Dr. Otto Plate, and recommend that the soldier attendant be made a noncommissioned officer. The attendance required of the latter is ten hours daily for the whole year, excluding Sundays only.

Very respectfully, your obedient servant,

PETER S. MICHIE,
Professor, United States Military Academy, Librarian.

E.

OFFICE OF TREASURER,
QUARTERMASTER, AND COMMISSARY OF CADETS,
*West Point, N. Y., September 1, 1898.*The ADJUTANT, UNITED STATES MILITARY ACADEMY, *West Point, N. Y.*

SIR: In compliance with instructions contained in Circular No. 36, C. S., headquarters United States Military Academy, I have the honor to make the following report of the work done in the departments under my charge, viz, (1) treasurer United States Military Academy, (2) quartermaster of cadets, (3) commissary of cadets, during the fiscal year ending June 30, 1898.

On the 6th of May last, in compliance with special order No. 70, paragraph 7, C. S., headquarters United States Military Academy, I relieved Maj. William F. Spurgin, Twenty-third Infantry, of his duties as treasurer and quartermaster and commissary of cadets, Major Spurgin having performed the duties from the beginning of the fiscal year up to that time.

TREASURER UNITED STATES MILITARY ACADEMY.

During the fiscal year the work of the office has consisted in keeping the separate accounts shown in Statement No. 1, and rendered necessary for the proper accounting for the very large sum of money, amounting approximately to \$200,000, received and disbursed by the treasurer.

In addition to all these accounts the treasurer is required "to keep an account with each cadet, in which he shall credit him with his monthly pay and charge him with the sums paid to his creditors." The financial standing of each cadet can thus be seen from his account at any time.

Accounts Nos. 2, 4, 6, 10, 12, 14, 16, 20, 22, 23, 25, and 28 show the total amounts received and expended under each out of the pay of the corps of cadets for its support and authorized expenses.

All of the accounts are settled by the treasurer every two months and afterward inspected by an officer detailed for the purpose. The books of the office are kept by Mr. J. E. Wilson, who for twenty-six years has performed the work in the most creditable manner and to the satisfaction of all interested.

Statement No. 1.

	Disbursements.	Receipts.
1. Assistant treasurer	\$174, 094. 42	\$171, 234. 22
2. Athletic association	1, 132. 22	1, 342. 22
3. Balances paid	20, 429. 72	20, 546. 67
4. Barber	571. 55	571. 55
5. Cadet cash	11, 792. 00	11, 773. 50
6. Hospital	3, 047. 78	3, 047. 73
7. Cadet laundry	10, 471. 76	10, 545. 81
8. Cadet quartermaster department	72, 926. 20	70, 214. 40
9. Cadet subsistence department	60, 557. 58	62, 059. 12
10. Confectioner	219. 00	219. 00
11. Corps of cadets	197, 302. 21	195, 895. 34
12. Damages, ordnance	37. 97	37. 97
13. Dancing	521. 37	521. 37
14. Dentist	885. 00	885. 00
15. Deposits	14, 541. 88	14, 737. 38
16. Dialectic Society	426. 57	272. 00
17. Equipment fund	12, 684. 00	13, 998. 00
18. Expressage	22. 15	22. 15
19. Gas fund	1, 062. 75	1, 217. 00
20. Hops and german	1, 740. 01	1, 648. 84
21. Miscellaneous fund .....	. 50	26. 75
22. Miscellaneous items	210. 75	440. 85
23. Onth	25. 35	24. 75
24. Paymaster	174, 094. 42	174, 094. 42
25. Periodicals	26. 04	52. 64
26. Photographer	67. 00	67. 00
27. Policing barracks	5, 373. 66	5, 373. 66
28. Young Men's Christian Association	170. 79	167. 00

The following statement, No. 2, was the last one made in the treasurer's office for the fiscal year 1896-97, and shows financial condition at the time of inspection, May 20, 1897.

Statement No. 2.

Assistant treasurer	\$33, 859. 24	Cadet laundry	\$1, 306. 94
Athletic association	61. 09	Cadet quartermaster	10, 373. 93
Cadet cash	152. 50	Cadet subsistence department	453. 16
Trust funds	20, 000. 00	Corps of cadets	10, 254. 00
Cash on hand	1, 155. 38	Deposits	490. 00
		Young Men's Christian Association	176. 75
		Equipment fund	21, 848. 00
		Dialectic Society	271. 61
		Miscellaneous fund	1. 34
	55, 228. 21		55, 228. 21

The following statement, No. 3, shows the condition of the treasurer's accounts at date of last inspection for the fiscal year 1897-98, and was made July 26, 1898.

Statement No. 3.

Assistant treasurer	\$2, 870. 20	Athletic association	\$15. 14
Cadet cash	118. 50	Balances paid	76. 95
Hops and german	91. 17	Cadet laundry	1, 365. 29
Oath .....	. 50	Cadet quartermaster	8, 864. 12
Paymaster	12, 353. 35	Cadet subsistence department	2, 197. 05
Trust funds	20, 000. 00	Corps of cadets	2, 094. 45
Cash on hand	1, 008. 63	Deposits	195. 50
		Equipment fund	21, 564. 00
		Dialectic Society	103. 90
		Gas fund	154. 25
		Miscellaneous fund	20. 94
		Miscellaneous items	230. 10
		Periodicals	7. 40
		Young Men's Christian Association ..	53. 26
	36, 442. 35		36, 442. 35

Owing to the breaking out of the war with Spain it became necessary to graduate the members of the first class on the 26th of April last, and they were paid at settlement of accounts the sum of \$15,718.45, an average to the 59 graduates of \$266.42 each; the 60 members of the furlough class were paid, prior to departure, the sum of \$5,750, an average of \$95.83.

Ninety-three new cadets entered at the commencement of this academic year, of this number 89 deposited \$7,978.63, an average of \$85.79 each; four cadets made no deposit. The smallest individual deposit made was 60 cents and the largest, \$196. This class was in debt on settlement of accounts June 30 last, \$4,520.21.

I desire to call attention to the fact that the requirement of a deposit of \$100 with the treasurer before a candidate is admitted to the Academy has not been complied with in all cases. The impression seems to prevail with many that this deposit is not necessary, and many instances are known where cadets believed to be well able to make the deposit have not done so.

I respectfully recommend that the treasurer be instructed to insist upon the deposit being made, and that no candidate be admitted without it unless under special instructions.

During the year there was paid to discharged cadets and to those resigned the sum of \$1,055.53, of which \$448.50 was for travel pay and \$180.33 for transportation, the latter amount having been received from the Quartermaster's Department for the purpose.

CADET QUARTERMASTER'S DEPARTMENT.

During the year this department has fully supplied the articles required by the corps of cadets, and, it is believed, to the satisfaction of all.

The following list shows the large number of articles manufactured and repaired in the department:

Articles.	Manu- factured.	Repaired.
Dress coats	258	319
Overcoats	184	256
Fatigue coats	513	774
White jackets	276	20
Gray trousers	578	1, 014
White trousers	1, 012	1, 457
Flannel trousers	195	96
Riding trousers	80	50
Officers' trousers	72	80
Officers' white trousers	19	
Officers' blouses	52	24
Officers' riding trousers	8	
Civilian dress coats	1	
Civilian dress vests	1	
Civilian dress trousers	1	
Officers' overcoats	2	4
Officers' dress coats	1	4
Officers' cape	1	
Waiver jackets	30	24
Chevrons sewed on		504
Civilian suits repaired		68
Shoes repaired		1, 024

CADET SUBSISTENCE DEPARTMENT

I believe the quantity and quality of the food furnished satisfactory in all respects. Since I assumed charge I have endeavored, so far as possible, to vary the bill of fare and to improve the service.

The cost of subsistence at the mess has been 53.5 cents per day to each cadet for the subsistence of cadets in hospital. The total cost of subsistence in both mess and hospital has been \$1,309.33 per day; the same cost for the fiscal year ending June 30, 1917, increased cost this year has been caused by the great increase in the cost of food, during the late war.

CADET LAUNDRY.

The following statement exhibits the articles laundered during the fiscal year:

Bathing suits	10	Pillowcases ..
Belts, shoulder	18,987	Sheets
Belts, sword	3,171	Shirts, white ..
Belts, waist	21,073	Shirts, night ..
Blankets, single	223	Shirts, under ..
Blouses	5	Socks, pairs ..
Clothes bags	1,809	Towels
Collars	106,604	Trousers, gray ..
Comfortables	117	Trousers, white ..
Cuffs, pairs	72,596	
Drawers	31,189	Total pieces ..
Gloves, pairs	40,933	
Handkerchiefs	67,148	
Jackets, white	1,309	Increased

The following shows the articles laundered for the cadets:

Bandages	36	Shirts, hospital ..
Blankets, single	8	Towels
Napkins	3,533	
Sheets	3,054	Total pieces ..
Tablecloths	326	
Bedspreads	681	
Mattress covers	5	Increased
Pillowcases	2,607	

No account has been kept of the articles laundered for the hospital.

The working capacity of the laundry is now taxed to the limit. If proper care for the immense wash received each week is not given promptly, it will be necessary to make improvements in the laundry and also in the drying room. The latter is in very bad condition and cannot perform the labor required of it. In consequence the work is very much delayed.

The number of pieces received for laundry is increasing from report. Steps are being taken to ascertain the cost of laundry in satisfactory condition.

On account of the very large and increasing number of pieces of laundry, I respectfully recommend that white laundry be received at parade, guard mount, and inspection only.

Very respectfully, your obedient servant,

Captain, Nineteenth Infantry, Treasurer of
Quartermaster's Department

F.

OFFICE OF THE QUARTERMASTER AND
West Point

The ADJUTANT, UNITED STATES MILITARY ACADEMY,
West Point, N. Y.

SIR: In compliance with instructions from your office, the 11th instant, I have the honor to submit herewith the report of the operations in the quartermaster's department and as director of the gas works for the fiscal year ending June 30, 1917.

QUARTERMASTER'S DEPARTMENT, UNITED STATES ARMY.

The duties pertaining to this department are enumerated in paragraph 972, Army Regulations, 1895.

The amounts received, disbursed, etc., under the various heads of appropriation are shown in accompanying statement, marked "A."

The following contracts for furnishing fuel, forage, and straw were entered into and satisfactorily fulfilled:

Gertrude Harnden, 150 cords hard and 60 cords soft pine wood.

Dickson & Eddy, 600 tons egg, 1,100 tons stove, and 300 tons chestnut coal.

O'Brien & Kellogg, 700,000 pounds oats and 40,000 pounds bran.

William E. Dante, 460 tons hay.

Chas. L. Rickerson, 40,000 pounds middlings and 110 tons straw.

DETACHMENT ARMY SERVICE MEN, QUARTERMASTER'S DEPARTMENT.

This organization is composed of men employed on extra-duty to perform labor as mechanics, laborers, and teamsters.

These men are enlisted to do specific work, for which, at time of enlistment, they expected to receive additional compensation, known as extra-duty pay, which pay they received up to April 26 last, when it was discontinued under provisions of section 6, act of Congress, published in General Orders, No. 29, A. G. O., April 29, 1898, abolishing extra-duty pay.

The men of this detachment are, in my opinion, deserving of extra compensation. When required to do so they work in all kinds of weather, and much more is expected of them than of enlisted men elsewhere.

In view of the requirements imposed on them, I earnestly recommend that efforts be made to have the extra-duty pay restored, not only for the future, but for the period of the war with Spain, during which time it was discontinued.

QUARTERMASTER'S DEPARTMENT OF THE UNITED STATES MILITARY ACADEMY.

My duties in this branch are defined in paragraph 15 of the United States Military Academy Regulations, 1894.

Contracts entered into during the year, and made in previous years and remaining in force in the fiscal year to which this relates, were as follows:

No.	Contractor.	Date.	Purpose.
1	Probst Construction Co.....	May 22, 1898	Memorial hall.
2	Westmoreland Coal Co.....	May 22, 1897	2,000 tons of gas coal.
3	Dickson & Eddy.....	do	4,600 tons coal.
4	Trenton Iron Co.....	July 28, 1897	Pier for coal-handling plant and wire rope.
5	Tacony Iron and Metal Co.....	May 13, 1898	Iron stairs, Engineer Barracks.
6	B. F. Jones.....	June 3, 1898	New dock and ferry slip.

The contract of the Probst Construction Company, for Memorial Hall, is being completed by its bondsmen, the American Surety Company; the contract has been extended to November 1st next. All other contracts, with the exception of that for new dock and ferry slip, have been completed. It was originally contemplated to have the new dock and ferry slip constructed by July 1 of the current year, but owing to the construction interfering with the steamboat traffic at the south wharf during part of the summer, and upon the request of the steamboat lines interested, contract was, with approval of the Superintendent, made to take effect September 23 next, work to be completed by December 5, this year.

The erection and completion of the following public works were made:

New guardhouse at south gate.

Public latrine.

Coal cableway.

Ordnance boathouse.

Iron stairway at engineer barracks.

The following improvements and repairs have been made by special appropriations or from appropriations proper for such purposes:

Continuing breast-high wall, maintaining and improving post cemetery, repairing interior cadet mess building, cadet laundry and store, cadet barracks, exterior and interior, cadet hospital, soldiers' hospital, hospital steward's quarters, ordnance laboratory, new leg guard for riding hall, repainting riding hall, feed boxes for cavalry stable, interior and exterior of cavalry barracks, removing rock for distance of 25 feet north of same; quartermaster's stables, roof and gutters of gymnasium; new granolithic sidewalk on east and north side of cadet mess hall, also south and west side of Academic building.

Repairs were made to the following buildings: Nos. 1, 3, 4, 5, 7, 8, 10, 10 A and 10 B, 13, 15, 19, 21, 22, 22½, 23, 24, 25, 27, 31, 32, 33, 34, 36, 37, 39, 40, 63, 65, and officers' mess.

The steam heating apparatus in all public buildings was overhauled and necessary repairs were made.

Six hundred feet water pipe, 6-inch, were laid from quarters No. 40 to the south gate guardhouse, near which point a culvert was constructed to protect pipes from freezing.

Stone walls were built at the following places:

West end of quartermaster's stables, 1,000 feet long, 6 to 20 feet high, and 5 feet in thickness.

South end of cemetery, 300 feet long, 10 feet high, and 3 feet in thickness.

At south gate guardhouse, 400 feet in length, of same dimensions as walls adjoining.

An arched culvert, 42 feet long, composed of stone and brick, was constructed under the road at Goose Pond.

Two thousand five hundred cubic yards granite stone were crushed for repairs to roads and for concrete pavements.

Roads were drained and macadamized at the following places:

From headquarters to southern boundary of the reservation, quarters No. 45 to the Goose Pond, and from Library Hill to the riding hall.

Statement of the receipts and disbursements for the fiscal year ending June 30, 1898, accompany this report, marked "B."

GAS WORKS, UNITED STATES MILITARY ACADEMY.

As director of the gas works, I am charged with providing the necessary illuminating gas for the needs of the post.

Officers and the civilians residing on the post, connected with the Academy, pay 75 cents per thousand feet for the gas they consume, which charge is taken as the cost of the manufactured gas. Each cadet pays 35 cents per month for the use of gas, which is taken as the cost of the manufacture of the gas.

The quartermaster's department pays 75 cents per thousand feet for gas consumed in lighting buildings devoted strictly to the use of that department.

The sums received, added to the appropriation of Congress for gas coal, sustain the gas works.

During the year 16,405,900 cubic feet gas were manufactured; 3,974,700 pounds Westmoreland gas coal and 4,732 gallons oil were used for this purpose.

One bench of six retorts was renewed.

The receipts and disbursements are shown in statement of special contingent fund, marked "C."

SPECIAL CONTINGENT FUND, UNITED STATES MILITARY ACADEMY.

This fund is derived from the rent of certain buildings, etc., on the post.

Expenditures for the repairs of the buildings which pay rent are made, under direction of the Superintendent, out of funds derived from rental.

This fund is also used for subscription to periodicals and for incidentals not provided for otherwise.

Statement of the receipts and disbursements under this head are included in statement marked "C."

Very respectfully, your obedient servant,

WM. F. SPURGIN,

Major, Twenty-third Infantry, Quartermaster, Disbursing Officer,
and Director of Gas Works, United States Military Academy.

A.—Statement of funds pertaining to the Quartermaster's Department, United States Army, for the fiscal year ending June 30, 1898.

Balance on hand July 1, 1897.....	\$1, 020. 70
Received since:	
Regular supplies.....	24, 323. 86
Incidental expenses.....	10, 989. 34
Army transportation.....	5, 666. 00
Sales to officers.....	4, 493. 32
Sales at auction.....	403. 95
Total to be accounted for.....	<u>46, 897. 17</u>

Disbursed:

Regular supplies.....	\$17,426.51
Incidental expenses.....	10,093.87
Army transportation.....	5,140.71
Deposited.....	4,897.27
Balance on hand June 30, 1898.....	9,338.81
Total.....	46,897.17

B.—Statement showing receipts and disbursements, etc., of funds pertaining to the appropriations for the support of the United States Military Academy, for the fiscal year ending June 30, 1898.

Date.		Current and ordinary expenses.	Miscellaneous and incidental expenses.	Buildings and grounds.	Memorial Hall.	Total.
	CR.					
July 1, 1897..	Balance on hand, fiscal year—					
Do.....	1896.....	\$3,675.62	\$434.01	\$742.01		\$4,851.64
Do.....	1897.....	4,213.40	1,164.67	2,687.80		8,065.87
Do.....	1897-98.....			10,000.48		10,000.48
Do.....	Memorial Hall.....				\$32,190.41	32,190.41
June 30, 1898.	Received since fiscal year—					
Do.....	1898.....	11.00		65.05		76.05
Do.....	1897.....	8,379.00	894.00	26,770.00		36,043.00
Do.....	1897-98.....			25,000.00		25,000.00
Do.....	1898.....	73,502.50	17,720.00	32,244.00		123,466.50
Do.....	1898-99.....		1,675.00	10,000.00		11,675.00
Do.....	Memorial Hall.....				85,000.00	85,000.00
	Total.....	89,781.52	21,887.68	107,509.34	117,190.41	336,368.95
	DR.					
June 30, 1898.	Disbursed, fiscal year—					
Do.....	1896.....	925.30	1.00	800.00		1,726.30
Do.....	1897.....	7,561.62	1,945.53	20,900.60		30,407.75
Do.....	1897-98.....			26,586.02		26,586.02
Do.....	1898.....	65,804.52	14,665.05	26,914.19		107,383.76
Do.....	1898-99.....		1,240.56			1,240.56
Do.....	Memorial Hall.....				95,559.66	95,559.66
Do.....	Balance on hand, fiscal year—					
Do.....	1896.....	2,761.32	433.01	7.06		3,201.39
Do.....	1897.....	5,030.78	113.14	8,557.20		13,701.12
Do.....	1897-98.....			8,414.46		8,414.46
Do.....	1898.....	7,697.98	3,054.95	5,329.81		16,082.74
Do.....	1898-99.....		1,675.00	8,759.44		10,434.44
Do.....	Memorial Hall.....				21,630.75	21,630.75
	Total.....	89,781.52	21,887.68	107,509.34	117,190.41	336,368.95

C.—Statement of receipts and expenditures pertaining to the special contingent fund, United States Military Academy, from July 1, 1897, to June 30, 1898.

	Gas works.	Rents, etc.	Total.
Balance on hand July 1, 1897.....	\$450.40	\$373.32	\$823.72
Received since:			
By rent of—			
West Point Hotel.....		2,250.00	2,250.00
Post-office.....		87.50	87.50
Stables.....		109.38	109.38
Store (retiring house).....		350.00	350.00
By sale of—			
Gas.....	5,317.47		5,317.47
Coke.....	655.06		655.06
Coal tar.....	430.56		430.56
Junk.....		66.27	66.27
Miscellaneous.....		366.17	366.17
Total to be accounted for.....	6,853.49	3,602.64	10,456.13
Disbursed.....	5,042.51	2,771.15	7,813.66
On hand June 30, 1898.....	1,810.98	831.49	2,642.47
Total to be accounted for.....	6,853.49	3,602.64	10,456.13

G.

SURGEON'S OFFICE, UNITED STATES MILITARY ACADEMY,
West Point, N. Y., August 25, 1898.

The ADJUTANT, UNITED STATES MILITARY ACADEMY.

SIR: In compliance with the requirements of Circular No. 35, United States Military Academy, August 11, 1898, I have respectfully to submit the following statement of the work done in the medical department of the post of West Point, N. Y., during the fiscal year ending June 30, 1898.

The strength of the command is shown in the following table:

Officers	47.98
Cadets	288.67
Enlisted men	313.56
Civilians, officers' families, etc	208
Civilians, soldiers and employees' families	514.75

The number of sick treated during the year is as follows:

Officers in quarters	19
Cadets in hospital	1,149
Cadets in quarters	2,481
Enlisted men in hospital and quarters	379
Civilians and officers' families who have received treatment from the cadet hospital	1,049
Civilians and soldiers' families who have received treatment from soldiers' hospital	2,625
Number of recruits examined	162
Number of recruits accepted	125
Number of recruits rejected	37
Births	18
Discharged for disability	4
Deaths:	
Officers	0
Cadets	0
Enlisted men	3
Civilians	8

The cases reported as having been treated from the cadet and soldiers' hospital represent only those for whom prescriptions were written. The unrecorded calls for attention and observation have been very much more numerous than those of which note is made. There was a daily average of 1,300 persons entitled to medical treatment.

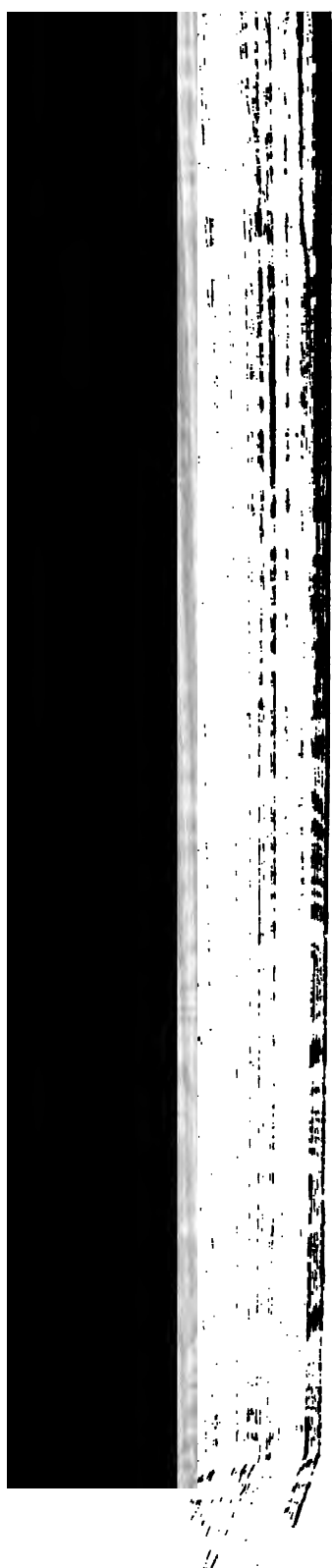
Under the supervision of the Superintendent the medical officers have had a care to the whole sanitary condition of the post. Generally speaking, the health of the command has been excellent. Cases of diphtheria, scarlet fever, measles, and mumps have all been treated during the year. These cases of contagious diseases have been rigidly quarantined. This precaution has prevented any spread of the disease. Malarial fever, generally of the tertian intermittent type, has prevailed at certain seasons. The fever has yielded readily to treatment. The luxuriant growth of underbrush throughout the reservation is being cut away wherever practicable. It is probable that this will diminish the amount of malarial disease. The water supply for West Point has been carefully and scientifically studied; it is excellent in quality and of ample quantity.

Lectures to the first class have been given by the surgeon on duty at the cadet hospital. The lectures were strictly practical. The subjects discussed were: The anatomy and physiology of the circulating and respiratory systems; hemorrhage; antiseptic surgery; the use of the first-aid packet; fractures and dislocations; also, the emergencies calling for prompt nonmedical attention.

Very respectfully,

WILLIAM L. KNEEDLER,
Captain and Assistant Surgeon, U. S. A.

**SIXTH REPORT OF THE BOARD OF ORDNANCE
AND FORTIFICATION.**



REPORT OF THE BOARD OF ORDNANCE AND FORTIFICATION.

WAR DEPARTMENT,
Washington, D. C., October 31, 1898.

THE SECRETARY OF WAR.

SIR: In compliance with the provisions of the act approved February 24, 1891, the Board of Ordnance and Fortification has the honor to submit, for transmission to Congress, its annual report for the year ended October 31, 1898.

PERSONNEL.

A change was made in the personnel of the Board during the year by the relief of Capt. James C. Ayres, Ordnance Department, on April 6, as recorder, and the appointment of Lieut. I. N. Lewis, Sixth Artillery, in his stead.

Captain Ayres had served as recorder of the Board since July 1, 1894, and, as an expression of its appreciation for his services, the following extract from the proceedings of April 12, 1898, is inserted:

Capt. J. C. Ayres, having been relieved as recorder of the Board of Ordnance and Fortification, the Board desires to place on record its high appreciation of his intelligent, efficient, and faithful assistance in the performance of its duties.

NEW LEGISLATION.

The only new legislation affecting the Board was contained in the fortification act, approved May 7, 1898, which made an appropriation for the work of the Board during the year ending June 30, 1899, as follows:

Board of Ordnance and Fortification.—To enable the Board to make all needful and proper purchases, experiments, and tests to ascertain, with a view to their utilization by the Government, the most effective guns, small arms, cartridges, projectiles, fuses, explosives, torpedoes, armor plates, and other implements and engines of war, and to purchase or cause to be manufactured, under authority of the Secretary of War, such guns, carriages, armor plates, and other war material as may, in the judgment of the Board, be necessary in the proper discharge of the duty devolved upon it by the act approved September twenty-second, eighteen hundred and eighty-eight; to pay the salary of the civilian member of the Board of Ordnance and Fortification provided by the act of February twenty-fourth, eighteen hundred and ninety-one, and for the necessary traveling expenses of said member when traveling on duty as contemplated in said act; for the payment of the necessary expenses of the Board, including a per diem allowance to each officer detailed to serve thereon when employed on duty away from his permanent station of two dollars and fifty cents a day, and for the test of experimental guns, carriages, and other devices procured in accordance with the recommendation of the Board of Ordnance and Fortification, one hundred thousand dollars: *Provided*, That before any money shall be expended in the construction or test of any gun, gun carriage, ammunition, or implements under the supervision of the said Board, the Board shall be satisfied, after due inquiry, that the Government

of the United States has a lawful right to use the inventions involved in the construction of such gun, gun carriage, ammunition, or implements, or that the construction or test is made at the request of a person either having such lawful right or authorized to convey the same to the Government.

That all material purchased under the foregoing provisions of this act shall be of American manufacture, except in cases when, in the judgment of the Secretary of War, it is to the manifest interest of the United States to make purchases in limited quantities abroad, which material shall be admitted free of duty.

APPROPRIATIONS AND ALLOTMENTS.

In compliance with the act of February 24, 1891, which requires the Board to "give a detailed statement of all contracts, allotments, and expenditures made by the Board," an exhibit, marked Appendix A, is attached to this report, giving this detailed statement from October 31, 1897, to October 31, 1898.

No contracts are entered into by the Board, as they are made by the chief of the department to which the work pertains, under the direction of the Secretary of War.

The following table gives a summary of the balances of appropriations at the date of the last report, the appropriation and allotments made during the year, and the balances remaining on hand October 31, 1898.

Summary.

Act.	Balance Oct. 31, 1897, and appropriated during the year.	Net allotments during the year.	Balance available for allotment.
Fortification act of—			
Sept. 22, 1888.....	\$5,302.00	.....	\$5,302.00
Mar. 2, 1888.....	14,775.00	.....	14,775.00
Aug. 18, 1890.....	10,305.00	\$2,895.63	7,410.46
July 25, 1892; Feb. 18, 1893; Aug. 1, 1894; Mar. 2, 1895; June 6, 1896, and Mar. 3, 1897.....	123,348.47	96,375.01	126,973.46
May 7, 1896.....	100,000.00		
Total.....	253,721.76	99,270.64	154,451.12

GENERAL OPERATIONS.

The general operations of the Board have been largely influenced by the war with Spain, officially declared April 21, 1898.

A majority of the members have been called to duty in the field during the summer, and it has been necessary to meet at longer and more irregular intervals than usual. A very large number of instruments and devices for coast defense, together with many plans and suggestions pertaining to offensive and defensive weapons, have been carefully considered, but comparatively little new work of experimental character has been undertaken, the Board directing its work in the emergency to making effective existing methods and means of national defense rather than in experimenting with the new and untried. However, no suggestion or device which, in the opinion of the Board, gave sufficient promise of future military value to warrant it, has failed to receive a suitable allotment for development and test.

SUBJECTS CONSIDERED.

A greater number and variety of subjects than usual have come before the Board. A list of these subjects, with a brief statement of action in each case, is given in Appendix B.

CONTRACT GUNS.

The hundred-gun contract.—Under this contract, twenty-five 8-inch, fifty 10-inch, and twenty-five 12-inch guns are to be made by the Bethlehem Iron Company. The following report of the company, dated October 4, 1898, shows that excellent progress is being made toward the completion of this contract:

MACHINE TOOLS AND EQUIPMENTS.

Several additions have been made to the assembling plant during the past year, including two No. 4 Universal milling machines and two 14-inch lathes.

PRESENT CONDITION OF GUNS BEING MANUFACTURED UNDER CONTRACT.

Twenty-five guns, 8-inch caliber.

Guns No. 1 to 25, inclusive.—Shipped.

Fifty guns, 10-inch caliber.

Guns No. 26 to 40, inclusive.—Shipped.

Gun. No. 41.—Accepted and ready for shipment. In use in shop for gun-carriage tests.

Guns No. 42 to 50, inclusive.—Shipped.

Guns No. 51 and 52.—Proof fired and ready to ship.

Guns No. 53 to 55, inclusive.—Assembled and breech mechanisms being fitted.

Guns No. 56 to 58, inclusive.—Assembled, finish-bored in main bore, and partly finish-turned outside.

Gun No. 59.—A hoops assembled; B hoops machined ready for assembling.

Guns No. 60 and 61.—All forgings excepting C hoops passed test and machined ready for assembling; C hoops forged and rough machined.

Guns No. 62 to 75, inclusive.—Of the 154 forgings (exclusive of breech mechanism parts) required to complete these guns, there are passed and machined for assembling eight tubes, four jackets, two B2, two B3, three D, and ten trunnion hoops; in addition there are forged and rough machined one tube, one jacket, three A1, one A3, and two C hoops.

Breech mechanisms for guns No. 56 to 65, inclusive, about half finished. For guns No. 66 to 75, inclusive, about one-third finished.

Twenty-five guns, 12-inch caliber.

Guns No. 76, 77, and 80.—Shipped.

Gun No. 79.—Accepted and ready for shipment. In use in shop for gun-carriage tests.

Guns No. 78, 81, and 82.—Assembled, finish bored, rifled, and finish turned.

Gun No. 83.—C hoops assembled; A, B, and D hoops passed and machined for assembling. Jacket forged and rough machined.

Guns No. 84 and 85.—Of 22 forgings (excluding breech-mechanism parts) required to complete these guns there are passed and machined for assembling one tube, two A1, two A2, two A3, two B2, two B3, two C1, two C2, two D, and two trunnion hoops.

Breech mechanisms for guns Nos. 78, 81, 82, 83, 84, and 85 are more than one-half completed.

EXPERIMENTAL GUNS.

The 8-inch Gatling cast-steel gun.—This gun has been constructed under a special act of Congress, approved June 6, 1896, appropriating \$40,000 for the purpose.

In August, 1897, the Board witnessed the casting of the gun at the works of the Otis Steel Company, Cleveland, Ohio, and in the following March was present during an attempt to mandrel it.

Dr. Gatling reports that the gun is now completed and ready for shipment to Sandy Hook for test.

The 10-inch Brown segmental-tube wire-wound gun.—Under date of September 30, 1898, the trustees of this gun report that progress during

the past year has not been as rapid as was desired on account of the difficulty of getting steel from the manufacturer. It is reported that the gun is now in the lathe and that the first layer of wire is partly wound.

It is hoped this gun will be ready for test early in the next year.

GUNS FOR THROWING HIGH EXPLOSIVES

The only material progress made during the year has been in the construction of guns for safely throwing charges of high explosives. It is proposed to light field guns of the smaller calibers, and to construct a gun of powder pneumatic.

Two systems of construction are under consideration. (1) *The Sims-Dudley system.*—The Sims-Dudley Company called the attention of the Board by the Sims-Dudley Company, New York, in January, 1896. The Board witnessed the firing of a 4-inch gun at the company's proving ground, and a full account of which is contained in the proceedings of the Board of April 13, 1896, and a description of the gun test is given in the sixth annual report. A number of improvements have been made, and the Board, believing that this system of construction gives promise of considerable military value, at its meeting of June 29, 1898, an allotment of \$7,500 to the Ordnance to procure for test one 5-inch gun of this system with fifty rounds of ammunition.

The company reports that the gun is now ready for firing tests and the official tests of this gun may be completed in the next sixty days.

(2) *System proposed by the Dynamite Ordnance Company.*—An allotment was made by the Board at its meeting of June 29, 1898, of \$5,000 to procure for test one 3-inch gun of the system proposed by the Dynamite Ordnance and Armament Company, with one hundred rounds of ammunition.

The gun and ammunition have been delivered to the proving ground, and the necessary tests will be completed as soon as the gun is ready.

The essential principle of operation in this system is the use of compressed air. The details of construction are, however, different. No auxiliary chambers are used. The gun is carried in the tailstock of the projectile, a primer is inserted in the breechblock being used to ignite the powder. The air contained in the bore space surrounding the projectile, when seated, acts as a cushion in starting the projectile. When the powder is violently compressed by the powder gases, the projectile is forced forward.

HEAVY RAPID-FIRE GUNS.

The Driggs-Seabury 4.72-inch rapid-fire gun.—This gun, originally known as the "Seabury 4.72-inch gun," was completed in the fall of 1897 and received back at the proving ground, Sandy Hook, in the spring of 1898. Its test was begun February 17. Twenty-four rounds were fired in the general test of the new mechanism, and the results were very satisfactory. It is expected that the tests will be completed in the next few days.

Five-inch rapid-fire built-up gun.—This gun, for which an allotment was made March 12, 1896, was completed and tested at the proving ground, when it burst, at the severe test.

abnormal action of the powder charge. An experimental smokeless powder, blended, was employed, and the character of the rupture showed the development of an abnormal pressure. There was no evidence of weakness in the design of the gun, nor defect in the quality of the metal used.

Six-inch rapid-fire gun.—This gun was proposed by the Board, and an allotment was made July 13, 1897, for its construction according to a design submitted by the Chief of Ordnance. It has been completed during the present month, but has not yet been tested.

Three-inch rapid-fire gun.—In September, 1897, and in March, 1898, the Board made allotments to enable the Chief of Ordnance to procure two type 3-inch 15-pounder rapid-fire guns, with suitable mounts, for the purpose of protecting mine fields. The guns have not yet been purchased.

MOUNTS FOR RAPID-FIRE GUNS.

Mount for 3-inch gun.—Two types of mount are to be procured for test with the two type 3-inch rapid-fire guns—one casemate and one parapet mount, the latter to be of the balanced pillar or masking type.

Pillar mount for 5-inch gun.—The 5-inch barbette carriage on balanced pillar mount was completed, with the exception of the shield, March 14, 1898, and in the emergency then existing was issued direct to Fort Hancock. The shield has since been attached, and the carriage is now undergoing test.

Mount for 6-inch gun.—The six-inch disappearing carriage, model of 1898, is now under construction. Its completion is expected within the coming year.

RAPID-FIRE FIELD GUNS.

Under allotment by the Board, the Chief of Ordnance has ordered from abroad a Maxim-Nordenfelt field gun and a Darmancier field carriage, but they have not yet been received for test.

MISCELLANEOUS.

Maxim-Nordenfelt 75-mm. mountain gun.—This gun is completed, but not yet received in this country.

Hotchkiss 1-pounder balloon gun.—The Board made an allotment February 15, 1898, to enable the Chief of Ordnance to procure for test one Hotchkiss 1-pounder balloon gun, with mount. A special mount for this gun has been ordered constructed at the Rock Island Arsenal.

Wilder machine gun.—On March 16, 1898, the Board made an allotment to enable the Chief of Ordnance to test this gun. The company controlling the gun has not yet presented it for test.

POWER APPARATUS FOR HEAVY GUNS.

The necessity for suitable power apparatus in the service of our new coast armament being generally recognized, the Board at its meeting in May made an allotment to cover the cost of a type electrical equipment for one of the 10-inch guns at Fort Wadsworth.

This equipment includes a motor for traversing, one to operate the elevating gear and the retraction gear, and one for operating the ammunition hoist, together with the necessary wiring, switches, and controllers. This plant is already partly installed.

GUN CARRIAGES.

The Emery 12-inch elevating carriage.—This carriage was contracted for under a special act of Congress approved February 18, 1893, appropriating \$110,000 for the purpose, and an additional appropriation made June 6, 1896, of \$10,000 for a loading apparatus.

The expenditures to date upon this carriage amount to \$84,821, of which \$12,500 has been expended in purchase of the ammunition for test.

The following letter from Mr. Emery shows the progress made during the past year:

STAMFORD, CONN., *September 29, 1898.*

GENTLEMEN: In reply to your letter of September 24, in regard to progress on my contract for 12-inch elevating gun carriage, of date March 17, 1893, which was modified by a provision of the act approved June 6, 1896, in such a manner as to permit the actual construction of this carriage, I would say work in the shops was commenced in the fall of 1896, and has proceeded during the past two years, but not with such rapidity as I had hoped and expected.

The drawings for this carriage had been made prior to this date, but many modifications of these drawings have been and are still being made, many of which were found desirable for the general utility and use of the carriage, and some to meet the exigencies which have arisen as the work progresses.

I spent three months in Washington in the spring and early summer in endeavoring to get contracts for guns which I felt would be of great advantage to our Government, if ordered. The time thus spent somewhat delayed this work, but a source of much greater delay has been caused by the great pressure of other Government work being done in the shop upon which I rely for the final finishing of a large part of my carriage.

Another source of very great delay is that much of the work is tentative and can not be decided and ordered until much other work is done, so that some of the rough material could not yet properly be ordered, some experiments having yet to be made first.

There are an unusually large number of different parts, each of which must be particularly looked after, some of which have required several shops to produce and finish a single piece.

Notwithstanding all these difficulties, there has been put into the different shops material for the metal work of this carriage amounting to more than 420,000 pounds, from which parts have been finished covering over 222,000 pounds of finished weight. The rest of this material is in the various stages of construction, with the exception of the material which could not yet be ordered, for the reasons above given. Besides this, there has been finished and delivered for the preliminary and proof tests of the carriages upwards of 92,000 pounds of ammunition.

I have a good force at work on the carriage pushing the work as fast as I can consistently with the great necessity of seeing that all the different parts of an entirely new machine are so made that they will properly fulfill the functions required of them, and so that the whole may be successful when done.

I remain, your obedient servant,

A. H. EMERY.

The BOARD OF ORDNANCE AND FORTIFICATION,
War Department, Washington, D. C.

The second 10-inch pneumatic carriage.—This carriage has been constructed under a special act of Congress approved August 1, 1894, appropriating \$50,000 for the purpose, and is now mounted at the proving ground, Sandy Hook, New Jersey. Owing to unexpected mechanical difficulties, the contractors have not yet reported the carriage ready for test. Of the total appropriation available, \$40,000 has already been expended.

The 10-inch Howell counterpoise carriage.—The firing tests of this carriage are now in progress at the proving ground, under the supervision of the Board.

The 10-inch disappearing carriage all-around fire.—This carriage was completed at the Watertown Arsenal September 21, 1898. In principle it is similar to the limited-fire carriages for guns of the same caliber.

It is intended to issue it directly to the emplacement prepared for it at Galveston, Tex., where the usual firing tests will take place.

The 12-inch disappearing carriage.—This carriage was completed at the Watertown Arsenal May 8, 1897. It has since passed a very satisfactory test at the proving ground and has been issued to the service.

EXPERIMENTAL PARAPET.

Steel-rail parapet.—In October, 1897, the Board made an allotment of \$10,000 for the purpose of constructing an experimental parapet to demonstrate the value of steel rails for the protection of guns and magazines.

The Chief of Engineers reports that the parapet has been constructed, but test has been delayed owing to the fact that the gun which was to have been used for the purpose was temporarily removed for use in the defenses at Fort Washington.

HIGH EXPLOSIVES.

The Board at its meeting on February 16, 1898, recommended the adoption of emmensite and wet gun cotton as types of high explosives to be used in charging shells, and on April 12 this action was supplemented by the addition of Joveite to the list. These recommendations were approved by the Secretary of War.

AUTOMOBILE DIRIGIBLE TORPEDOES.

No material progress has been made during the year in the development of a serviceable dirigible torpedo of moderate cost.

The Halpine automobile torpedo, for which an allotment was made by the Board July 1, 1896, has not yet been presented for test. On August 25, 1898, the inventor requested permission to make a preliminary trial of his first torpedo at Willets Point, in order to demonstrate certain points which would be of advantage to him in the construction of a second torpedo for delivery to the Board. This request has been granted, and it is expected that the value of this invention will be determined during the coming year.

RANGE AND POSITION FINDERS.

Emergency type position finder.—At its meeting April 12, 1898, the Board recommended that the instrument adopted as the emergency type position finder should have an accuracy of 1 per cent of range up to 6,000 yards when the vertical base is 60 feet; when greater than 60 feet, the accuracy should be 1 per cent of range up to 8,000 yards, and the instruments should be so constructed in several classes as to admit of being adjusted to varying lengths of base within certain limits. This proceeding was approved by the Secretary of War.

Both the Rafferty and the Lewis instruments comply with these requirements, and the question as to which will be procured should be determined by the cost.

Rafferty range finder to be attached to gun carriage.—This instrument was constructed under an allotment by the Board and sent to the Artillery School at Fort Monroe for trial. The board of artillery officers, which convened at that post to test the instrument, reports that—

The board is of the opinion that an emergency range finder is very desirable for use at the gun when the regular range-finding system fails from any cause; that the depression principle with stable mount in some suitable place in the gun emplace-

ment capable of being quickly adjusted and the adjustment of the bench-marks as the target changes its distance, and easily kept level, will give great satisfaction. The board does not regard the present instrument as a form practicable for the artillery.

The Barr and Stroud fortress range finder.—The instrument, purchased under an allotment of the Board, has been in use during the past year at the proving ground and the proving factory for service use.

The alternating current range finder.—In December, 1897, Lieut. Geo. C. Crehore, of Dartmouth College, and Lieut. Geo. C. Crehore, of the Artillery, proposed the construction of an "alternating current range finder," for use with a long horizontal base, in connection with the Wheatstone bridge were to be used in the plotting arms. Drawings and estimates of the cost of the instrument and the Board made an allotment for the construction of this type. Under the allotment the instrument was purchased and installed at Fort Monroe, where it was inspected by the Board on the Regulation of Seacoast Artillery Force, to test range finders, June 16, 1898. From the report it appears that the inventors, during construction, introduced characteristic electrical features, and in the form finally adopted the instrument is purely mechanical. The Board, from its inspection of the instrument and its working, is satisfied with the results, and will be a very satisfactory instrument.

The Ruckman-Crosby range finder.—Lieut. J. H. Ruckman, of the Artillery, that, owing to other exacting duties during the year, he was unable to devote but little time to the further develop-

BOARD ON THE REGULATION OF SEACOAST ARTILLERY

The operations of this board have been confined to the revision and correction of proof of the text and publications for Coast Artillery, which have been approved by the Secretary of War and distributed to the service; the calculation of gun commanders' range scales for all the different calibers of the coast armament, and in examining into and testing various special devices which have been submitted to the board.

The typical artillery station at Fort Wadsworth is now being equipped under its supervision, with the exception of the auxiliary defenses.

The routine work of the Board has been much increased by the detail of its several members on active duty in the field, in order to make exhaustive tests of the

ESTIMATES FOR THE COMING YEAR

In order to carry on the work of the Board for the coming year, an estimate of one hundred thousand dollars was submitted to the Secretary of War at the meeting.

It is recommended that the appropriation be made in a single amount to enable the Board to make all purchases, experiments, and tests to ascertain, with the sanction of the Government, the most effective guns, projectiles, fuses, explosives, torpedoes, armor plates, and engines of war, and to purchase or cause to be purchased under authority of the Secretary of War, such plates, and other war material as may, in the judgment of the board, be necessary in the proper discharge of the duties of the board. The act approved September 22, 1888; to pay the

member of the Board of Ordnance and Fortification provided by the act of February 24, 1891, and for the necessary traveling expenses of said member when traveling on duty as contemplated in said act; for the payment of the necessary expenses of the Board, including a per diem allowance to each officer detailed to serve thereon when employed on duty away from his permanent station, of \$2.50 a day; and for the test of experimental guns, carriages, and other devices procured in accordance with the recommendation of the Board of Ordnance and Fortification, the expenditure of which shall be made by the several bureaus of the War Department heretofore having jurisdiction of the same, or by the Board itself, as may be approved by the Secretary of War.

The Board desires to call especial attention to the change recommended above in regard to expenditures. The Board believes it to be for the best interests of the service that it should more directly control the appropriation made for its work, subject always to the approval of the Secretary of War.

CONCLUSION.

While types of all the more important engines and appliances of war for our coast defenses have already been developed and adopted under the auspices of the Board, much remains to be accomplished in order to make the armament truly effective. It is the aim of the Board to keep in touch with the best inventive talent of the country in all that pertains to war material, to encourage the development of every suggestion and device of value presented, and to use the funds at its disposal to secure for our service the best products of American genius.

NELSON A. MILES,

Major-General Commanding the Army, President of the Board.

ROYAL T. FRANK,

Colonel, First Artillery, U. S. Army.

PETER C. HAINS,

Colonel, Corps of Engineers, U. S. Army.

JOSEPH H. OUTHWAITE.

Civilian Member, Board of Ordnance and Fortification.

I. N. LEWIS,

First Lieutenant, Sixth Artillery, Recorder of the Board.

I concur in the above, except as to the proposed change in the manner of making disbursements, believing the method prescribed by Congress at the creation of the Board is still for the best interest of the Government.

FRANK H. PHIPPS,

Lieutenant-Colonel, Ordnance Department, U. S. Army.

APPENDIX A.

TABLE SHOWING ALLOTMENTS AND EXPENDITURES MA ORDNANCE AND FORTIFICATION FROM OCTOBER 31, 18 INCLUDING STATEMENT OF UNEXPENDED BALANCES UN PRIATIONS.

Act of September 22, 1888.

Balance on hand October 31, 1897
Allotments during the year

Balance available for allotment

Act of March 2, 1889.

Balance on hand October 31, 1897
Allotments during the year

Balance available for allotment

Act of August 18, 1890.

Balance on hand October 31, 1897
Allotments during the year:
 Nov. 17. One Maxim-Nordenfelt 75 mm. mountain gr
 riage, ammunition, etc.....

Balance available for allotment

*Acts of July 23, 1892; February 18, 1893; August 1, 1894; M
March 3, 1897, and May 7, 1898.*

Balance on hand October 31, 1897
Act of May 7, 1898

Allotments during the year:

- Nov. 17. Two Rafferty position finders, on tripods.....
- Dec. 21. Experiments and tests of explosives for char
 ing shells.....
- Jan. 6. Charge against Board for mileage paid by Pa
 Department
- Charge for stationery and miscellaneous sup
 plies.....
- 18. Five 8-inch Gathmann shells
- 19. Driggs-Seabury minimum recoil field carriage
 Bofors 15-centimeter rapid-fire gun and mount
- Feb. 15. Hotchkiss 1-pounder balloon gun and mount.
- 16. Instrument for observation of fire
- 18. Charge against Board for transportation pai
 by Quartermaster's Department
- Mar. 14. Schmidt chronograph
- 15. 3-inch 15-pounder rapid-fire gun and mount..

* Available only for the purchase of movable sub

Allotments during the year—Continued.

Mar. 16.	Test of Wilder machine gun.....	\$300.00
	Experiments with wireless telegraph at Fort Monroe.....	600.00
	Experiments with wireless telegraph at Fort Wadsworth.....	600.00
	Combination horizontal base and depression position finder.....	3,000.00
Apr. 12.	Bofors 15-centimeter gun, additional.....	2,417.00
	Two searchlights.....	4,000.00
13.	Lewis range finder, repair of.....	130.00
	Photochronograph, expenditure connected with.....	2.70
	Range and azimuth transmitting device.....	175.00
	Installation of same.....	192.00
	Instrument for observation of fire, additional.....	46.00
27.	Charge for stationery and miscellaneous supplies.....	46.40
May 11.	Electrical manipulation of guns, equipping gun, etc.....	700.00
	Pierce photographic plane table, construction and test.....	500.00
June 29.	3-inch dynamite gun and ammunition.....	5,000.00
	5-inch dynamite gun and ammunition.....	7,500.00
Aug. 5.	Charge for stationery and miscellaneous supplies.....	67.31
Oct. 1.	Charge against Board for transportation paid by Quartermaster's Department.....	140.90
31.	Expenses of the Board.....	9,839.82
Total.....		99,125.01
Revocation of allotment under these acts		
Oct. 1.	From allotment of January 18, 1898, for Gathmann shells.....	2,750.00
Total net allotments.....		\$96,375.01
Balance available for allotment.....		126,873.46

RECAPITULATION.

Act.	Balance on hand Oct. 31, 1897, and appropriated during the year.	Allotments during the year.	Allotments revoked.	Balance on hand available for allotment.
September 22, 1888.....	\$5,392.60	.....	.....	\$5,392.60
March 2, 1889.....	14,775.00	.....	.....	14,775.00
August 18, 1890.....	10,305.69	\$2,895.63	.....	7,410.06
July 25, 1892; February 18, 1893; August 1, 1894; March 2, 1895; June 6, 1896, and March 3, 1897..	123,248.47	} 99,125.01	\$2,750.00	126,873.46
May 7, 1898.....	100,000.00			
Total.....	253,721.76	102,020.64	2,750.00	154,451.12

APPENDIX B.

Subjects considered during the year.

Subject.	Proposed by—	Action.
Aerial blasting apparatus	Arthur John Worrall.....	Not recommended.
Electric revolver	F. H. Caldwell	Do.
Land battery	M. Bennett	Do.
Field gun, 75 mm., complete, ammunition, etc.	Maxim-Nordenfolt Gun and Ammunition Co.	Recommended. *
Mountain gun, 75 mm., complete, ammunition, etc.	do	Allotment.
Depression position finders, on tripods	Lieut. W. C. Rafferty	Do.
Air-navigating machine	James Seldon Cowdon	Not recommended.
Shell for projecting frozen dynamite	H. W. Blair and H. P. Hurst.	Do.
Fuse	H. P. Hurst	Do.
Projecting high explosives	Arthur Foster	Do.
Submarine boat	C. O. Rude	Referred to Secretary Navy.
Under-sea battery	F. Rossi	Not recommended.
Range-finding devices	Tokiwa Matsuo	Do.
Booms for harbor defense	Cornelius O'Brien	Do.
Combination shotgun and rifle	F. G. Smith	Do.
Observation stations in batteries, position of	Board on Regulation of Seacoast Artillery Fire.	Deferred for test.
Wireless telegraph	Lieut. I. N. Lewis	Allotment.
Coast defense, comments on	Jacob Maunee	Filed.
Data necessary in laying seacoast guns, instrument for finding.	Lieut. Wm. S. McNair	Estimates called for.
Tests of explosives, etc.	Chief of Ordnance	Allotment.
High-explosive shell, Gathmann	G. W. McMullen	Do.
Disappearing war ship	F. Rossi	Not recommended.
Armored car	J. A. F. Brownwell	Do.
Coast defense	Wm. D. Elting	Do.
Explosive shell	C. A. Amundson	Do.
Mortars, position in battery	Board on Regulation of Seacoast Artillery Fire.	Under consideration.
Lewis azimuth indicators for 8 and 10-inch guns at Fort Wadsworth.	do	Recommended.
Field carriage, minimum recoil	Driggs-Seabury Gun and Ammunition Co.	Allotment. .
Iron fortifications, casting of	James Acton Miller	Not recommended. .
Micrometer range finder	Capt. D. D. Gaillard	Allotment.
Explosive shell	J. Byron Roney	Not recommended.
Range-finding system	Frank O. Weary	Do.
Air-navigating device	Charles Fiesse	Do.
Cavalry equipment, changes in	S. E. Chamberlain	Do.
Rapid-fire gun, 15 cm., with mount and ammunition.	Aktiebolaget Bofors-Gullspång.	Allotments.
Torpedo gun, 24-inch	Hudson Maxim	Not recommended.
Hotchkiss 1-pounder balloon gun and mount.	Chief of Ordnance	Allotment.
Armored turret	C. H. Adams	Not recommended.
Device for quick computation of measurements.	J. H. Jackson	Do.
Rapid-fire gun and submarine boat	C. P. Labatt	Do.
Instrument for observation of fire	Board on Regulation of Seacoast Artillery Fire.	Allotment.
Steel plates for fortifications	Clark W. Fish	Not recommended.
Air ship	G. Berger	Do.
Torpedo system, transfer to artillery arm	Board on Regulation of Seacoast Artillery Fire.	Postponed.
Ammunition for testing typical artillery station.	do	Recommended.
Packing ammunition for small arms	Lieut. J. A. Penn	Not recommended.
High explosives, emmenite, and gun cotton	Board of Ordnance and Fortification	Adopted as types.
Wilder machine gun, test	R. O. Surbridge	Allotment.
Schmidt chronograph	Chief of Ordnance	Do.
Transporting artillery, suggestions for	Geo. W. Fisher	Filed.
Small arms, rest for	B. N. Firmin	Not recommended.
Repeating bomb-shell	Thos. B. Ashford	Do.
Torpedo system	J. M. E. Hall	Do.
Suggestions in case of war	Will Ellsworth	Filed.
Armor-plate ball-bearing fort	W. H. Fitzgerald	Not recommended.

* Not approved by Secretary of War.

Subjects considered during the year—Continued.

Subject.	Proposed by—	Action.
Air ship	Therese Schaetzl	Referred to Chief Signal Officer.
Wire-wound gun	T. Reynolds	Not recommended.
Steel fortification	F. Rossi	Do.
Wire-wound, segmental-tube 12-inch mortar	Brown & Munsell	Postponed.
Method of manufacturing ordnance and projectiles.	J. A. Potter	Under consideration.
Telephones, whether satisfactory	Chief Signal Officer	No changes recommended.
Bomb-dropping device	F. Peale	Not recommended.
Coast defense by petroleum	D. G. Wood	Do.
Torpedoes, offer to supply	G. H. Selleck & Co.	Referred to Chief of Engineers.
Observation tower	Geo. S. Kyle	Not recommended.
Portable breastworks	Elmer E. Van Wie	Do.
Harbor defense	B. C. Monroe	Do.
High-explosive shell	W. A. Scott	Do.
Torpedo system	Albert Bierstadt	Do.
Torpedo defense	J. C. Schuler	Do.
Practice bullet	Paul Alexander	Do.
Data for laying guns, device for obtaining	Capt. Sedgwick Pratt	Estimates called for.
Air ship	William Auberlin	Not recommended.
Automatic range finding sight, Rafferty	American Artillery Range Finder and Relocator Co.	Insufficient data.
Three-inch 15-pounder rapid-fire gun, complete, Vickers & Maxim.	Chief of Ordnance	Allotment.
High-explosive shell	J. A. Bremner	Not recommended.
Automobile torpedo	Jno. H. Patrick	Postponed.
Automobile torpedo	John L. Lay	Do.
Projectile for smooth-bore guns	Weaver & Leedy	Not recommended.
Bomb-dropping device	James A. Hill	Do.
Smoke-producing shell	Joseph Diester	Do.
Harbor defense	J. M. Case	Do.
Torpedo system	J. A. Bower	Do.
Projectile	C. C. Henley	Do.
Coast defense by petroleum	John Coefield	Do.
Range finding	J. W. Scott	Do.
High-explosive shell	R. J. McKeone	Do.
Smoke-producing shells, suggesting	George F. Cole	Filed.
Flying machine	Charles E. Morgan	Not recommended.
Wireless telegraph	Lieut. Geo. O. Squier	Allotment.
Combination horizontal base and depression position finder.	Board on the Regulation of Seacoast Artillery Fire.	Do.
Revolving rapid-fire 12-inch gun	D. S. Haynes	Not recommended.
Rocket	Charles White	Do.
Range finder	Nicholas Tobin	Do.
Air ship	Martin Braun	Referred to Chief Signal Officer.
Submarine mines, suggestions	T. P. Sleeper	Filed.
Submarine mine	J. J. Rusterholz	Not recommended.
Aerial torpedo	G. H. Stout	Do.
Inventive faculty, offering time and	John Wilde	Filed.
Torpedoes, operation of	A. Osterloh	Not recommended.
Cast-iron projectile	F. Schmidt	Do.
Aerial torpedo	J. A. Murphy	Do.
High-explosive shell	E. L. Manhayser	Do.
Torpedo system	Wm. F. Brewster	Filed.
Position finder and bomb dropper	Theo. F. Krueger	Not recommended.
Coast defense, projectile for	James A. Hentz	Do.
Revolving turret	Thomas H. Scott	Do.
Air navigating machine	A. W. Barnard	Referred to Chief Signal Officer.
Automatic loading mechanism for small arms	A. B. Harmon	Not recommended.
Range-finding device	W. G. Caffrey	Do.
Circular floating battery	Thomas L. Sturtevant	Do.
Fort	Chas. La Due	Do.
Shell for throwing inflammable oil	F. L. Seely	Filed.
Coast defense, system of	C. W. Dutton	Referred to Navy Department.
Range finders, emergency	Lieut. I. N. Lewis and Lieut. W. C. Rafferty.	Price to determine selection.
Dirigible torpedo	Richard Lamb	Not recommended.
Automatic loading of small arms	A. B. Harmon	Do.
Conversion of 15-inch smoothbore guns	A. H. Emery	Do.
Jovelte, high explosive	Jovelte Manufacturing Co.	Adopted as a type.
Searchlights	General Electric Co.	Allotment.
Lewis position finder, repair of	Chief of Ordnance	Do.
Installation of photochronograph, expenditure	do	Do.
Long base depression range finder	Lieut. D. W. Ketcham	Not recommended.
Torpedo	James Mackintosh	Do.
Range and azimuth transmitter, Prentiss Clock Co.	Board on Regulation of Seacoast Artillery Fire.	Allotment.

Subjects considered during the year—Con

Subject.	Proposed by—
Gatling cast-steel gun, data relative to manufacturing.	Capt. W. W. Gibson
Projectile for smoothbore guns	W. J. Holman
Dirigible torpedo	J. E. Trimble
Seacoast forts, necessary work in, recommendations.	Board on Regulation
Torpedo-dropping device	coast Artillery Ft
Ammunition cart	George C. Short
	Capt. W. C. Manning
Wire-wound gun, further test	W. E. Woodbridge ..
Explosive compounds	T. L. Abbott
Packing ammunition, method of	F. L. Hagadorn
Magnetism in warfare	E. H. Ropes
Overhead torpedo system	Electrical Defense C
Ordnance construction	E. J. Spink
Submarine foundations for forts	A. Blanchard
Interlocking dangle plates for armor	Joseph Koposay
Air-ship propeller	A. G. Cummings
High explosives, letter relative to	Geo. Blackman
Device for conveying torpedoes	John A. Ettler
Range-finding device	Joseph T. Brown
High-explosive projectile	E. R. Levy, attorney
Cartridge	James W. McMillar
	R. Levy.
Air ship	Atlantic and Pacific
	Navigation Co.
Torpedo defense, system of	Ferdinand Fish
Projectile, further experiments	Justin Projectile Co
Railroad battery	Jacob Maunee
Torpedo system	G. W. Gilmore
Bomb-dropping device	Andrew E. Veon
Coast defense by balloons	M. L. S. Buckner
Submarine mine	Lewis Wolfey
Dynamite gun, Hicks	E. H. Van Deusen
Dirigible torpedo	H. P. Wellman
Air ship	Thomas J. Brown
Range finding, system of	N. Bray
Projectile	J. J. Moore
High-explosive shell	E. L. Drake
Explosive shell	L. H. Kellogg
Nitroglycerine shell	W. J. Young
Pneumatic projectile	G. T. Bruckman
Invention, not described	A. B. Bryant
Projectile	J. D. Smith
Projectile, new form	Brewster Phillips
Blunt-point armor-piercing projectile	W. H. Weddington
Portable cannon	T. W. Davidson
Projectile	E. C. Smith
Dirigible torpedo	John F. Alexander
Ordnance construction, John Schnepf	F. F. Atkinson
Multicharge gun	Robert E. Cason
Multicharge projectile	Hon. W. F. Foote
Haskell gun for experiment	F. L. Rankin
Ordnance construction	Joseph West
Torpedo system	A. T. Kelihor
Projectile	Berg & Wenig
Rifling cannon, method of	do
Armor-piercing projectile, experiment	Geo. D. Potter
Gun for projecting high explosives	F. L. Hall
Rapid-fire gun	C. J. W. Johnson
Air ship	Wm. Hegershoff
Invention, not described	E. E. Davis
Bomb-dropping device	J. S. Artell
Rafferty range finder, accuracy of	Board on Regulation
	coast Artillery Ft
Javelite, tests of, report	Maj. F. H. Phipps
Torpedo, dirigible, Sims-Edison	Sims-Dudley Defens
Offer of services as chemist	Charles Stuart Ball
Horizontal-base range finder	Lieut. Geo. O. Squ
	Prof. A. C. Crehor
Explosive projectile	Arthur J. Padron
Shell filled with gasoline	John Murphy
Lessening noise in firing cannon	L. W. Edmister
Powder to incommode enemy	H. H. Edwards
Noiseless gun	John Thomas
Projectile	F. E. Austin
Gasoline shell	H. J. Coon

Subjects considered during the year—Continued.

Subject.	Proposed by—	Action.
Coast defense.....	E. F. Atkinson.....	Not recommended.
Defense by balloons.....	John W. Phillips.....	Do.
Torpedo.....	A. A. Mahon.....	Do.
Electrically charged projectile.....	A. M. Barber.....	Do.
Method of loading dynamite.....	W. H. Burdett.....	Do.
Rocket torpedo.....	Wm. A. Adams.....	Do.
Lightning ball.....	R. L. Bette.....	Do.
Bombshell.....	H. S. Brooking.....	Do.
Attachment to scatter bullets.....	T. J. Suggs.....	Do.
High-explosive shell.....	W. O. Journeay.....	Do.
Shell filled with snuff.....	Joseph Bard.....	Do.
Floating fort.....	T. B. Peacock.....	Do.
Torpedo.....	F. P. Shepard, W. O. Brissey.....	Do.
War machine.....	C. L. Correll.....	Do.
Gasoline shell.....	Wm. R. Elliott.....	Do.
Projecting dynamite from powder guns.....	A. E. McIlwain.....	Do.
Armored fort.....	C. Mellish.....	Do.
Revolving turret.....	P. H. McCall.....	Do.
Floating fort.....	Mark Franklin.....	Do.
Accelerating projectile.....	G. W. Blankenbeckler.....	Do.
Gun mounted on car.....	J. H. Abernethy.....	Do.
Use of compressed air instead of powder.....	J. W. Marsey and J. H. Woods.....	Do.
Telescopic projectile.....	W. F. White.....	Do.
Coast and harbor defense.....	Henry Bruns.....	Do.
Inflammable shell.....	W. E. Duplanty.....	Do.
Balloons in warfare.....	M. W. Clement.....	Do.
Floating battery.....	Daniel Cook.....	Do.
Coast defense by burning oil.....	James H. Reinhardt.....	Do.
Plan to prevent heating of guns.....	E. M. Reed.....	Do.
Device for harbor defense.....	J. H. Wilkins.....	Do.
Coast defense by petroleum.....	A. W. Burnham.....	Do.
Cable torpedo launch.....	Richard Giffin.....	Do.
Oil shell.....	J. S. Rankin.....	Do.
Powerful sunglass to burn cities.....	W. S. Herman.....	Do.
Sighting rifles by spirit level.....	E. W. Collins.....	Do.
Chain shot.....	Henry Hope.....	Do.
Armored car.....	B. F. Smith.....	Do.
"50-barrel multi gun".....	F. M. Shields.....	Do.
Range-finding system.....	S. B. Pfifer.....	Do.
Aerial torpedo.....	E. C. Colardean.....	Do.
Coast defense by magnetic currents.....	James Coker.....	Do.
Projectile.....	C. H. Prescott.....	Do.
Submarine boat.....	J. M. Case.....	Do.
Armored car.....	A. R. Jackson.....	Do.
Coast defense.....	Henry H. Lemke.....	Do.
Four-barrel cannon.....	Horace A. Manley.....	Do.
Means to prevent heating of rifles.....	M. C. Barden.....	Do.
Steel shield.....	Michael D. Powers.....	Do.
Floating mine and torpedo conveyor.....	Geo. Richardson.....	Do.
Double-action bullet.....	Max Cohen.....	Do.
Armored turrets.....	P. H. T. Hines.....	Do.
Projectiles.....	R. W. Trotter.....	Do.
Shells charged with prussic acid.....	F. J. Bruguiere.....	Do.
Electricity in projectiles.....	P. L. West.....	Do.
Harbor defense by pipeline and inflammable oil.....	G. S. Nutter.....	Do.
Bomb-dropping device.....	A. A. Minkler.....	Do.
Self-propelled armored car.....	Frank J. Nelson.....	Do.
Bullets for small arms.....	John Kauck.....	Do.
Shells containing cayenne pepper.....	T. Silcox.....	Do.
Hollow projectile.....	Roy Gilman.....	Do.
Coast defense.....	W. A. Stidston.....	Do.
Harbor defense.....	Joseph Delamar.....	Do.
Shells filled with cayenne pepper, chloroform, gasoline, etc.....	John Elliott.....	Do.
Torpedo.....	C. E. Mowre.....	Do.
Torpedo system.....	Mrs. N. M. Atwood.....	Do.
Torpedo tube.....	P. H. Wedmark.....	Do.
Gun 300 calibers in length.....	Wm. B. Felte.....	Do.
Blunt point armor-piercing projectile.....	E. J. Calvert.....	Do.
Shell for firing nitroglycerine.....	D. M. Clinton.....	Do.
Shell filled with explosive liquid.....	A. A. Thompson.....	Do.
Iron and earth parapet.....	L. Clark Leftrich.....	Do.
Projectile for smoothbore guns.....	C. J. Little.....	Do.
Shell in which explosive force is formed after impact.....	J. H. Donnell.....	Do.
Observation tower, torpedo, etc.....	James P. Cosgrove.....	Do.
Rawhide-wound gun, test of.....	James E. Lee.....	Do.
Electrical power for manipulating guns.....	Chief of Engineers.....	Allotment.
Shells, method of exploding.....	Chas. Walker.....	Not recommended.
Photographic plane table.....	Josiah Pierce, jr.....	Allotment.

Subjects considered during the year—Continued.

Subject.	Proposed by—	Action.
Submarine mines, operation of and armor for	Henry Guy Carlton	Not recommended.
Base fuse	Wm. W. Kimball, by J. H. Costello.	Do.
High-explosive shell	Justus Day	Do.
Aerial torpedo, dynamite, and rapid-fire gun	Wm. M. Douglas	Do.
Accelerating projectile	Joseph West	Do.
Nitroglycerine shell	W. J. Young	Do.
Explosive shell	J. E. Schlorf	Do.
Projectile	J. H. Hammer	Do.
Air ship	A. Thomas	Referred to Chief Signal Officer.
Self-propelling vehicle for artillery	R. H. Plass	Not recommended.
Armored turret	M. C. Mengis	Do.
Range and position finder	Wm. A. Norton	Do.
Device to prevent noise when firing cannon	Robert Schindler	Do.
Projectile	J. H. Gibson	Do.
Combustible shell	W. E. Baxter	Do.
Device for firing dynamite	B. Van Caurvenbergh	Do.
Air compressor	C. H. Callahan	Do.
Bomb-dropping device	W. W. Bennett	Do.
Subcaliber barrel for Springfield rifles	H. R. Mansfield	Do.
Floating battery	Jacob Roux	Do.
High-explosive shell	J. A. Laycock	Do.
Bicycle with rapid-fire gun	Herman Stelter	Do.
Armored pneumatic tire for bicycles	R. C. Hansell	Do.
Aerial bomb-dropping device	W. C. Vandergrift	Do.
Rocket projectile for high explosives	John S. Passenger	Do.
Projectile	E. J. Short	Do.
Compound shell	W. C. Alexander	Do.
Means of destroying submarine mines	W. T. Mosher	Do.
Dynamite bombs	T. G. Duckworth	Do.
Multicharge projectile	E. E. Brown	Do.
Shell to contain powerful gas	A. T. Cwerdinaki	Do.
Converting repeating rifles into rapid-fire guns	James A. Rogers	Do.
High-explosive shell	A. Schumacher	Do.
Shell to contain oil and inflammable cotton balls	Robert L. Barr	Do.
Rapid-fire gun	F. M. Weber	Do.
Breech mechanism for rapid-fire gun	E. C. Ernst	Do.
Metal-piercing projectile	J. Breinig	Do.
Aerial torpedo, modification	George F. Cole	Do.
System of offense by balloons	Elias A. Long	Do.
Method of firing dynamite	A. T. Koopman	Do.
Means of transporting heavy guns	L. J. Germain	Do.
Spring-cushion armor plate, Le Page	Henry Parker	Do.
Subterra torpedo	James S. Schuler	Do.
High-explosive shell	C. de M. Silveira Lobo	Do.
Steel tower for observation purposes	Augustus Smith	Filed.
Fulminate of gold, offer to experiment	John D. Dow	Not recommended.
Air ship	J. C. D. Towson	Do.
High-explosive shell	Hiram Shaver	Do.
Aerial torpedo and fuse, Dana	Norman M. Paull	Do.
Smokeless powders, report	Chief of Ordnance	Filed.
High explosive, resubmitted	Americanite Manufacturing Co.	Adverse action adhered to.
Dirigible torpedo	H. P. Wellman	Not recommended.
Range finder to be attached to gun carriage, Rafferty	American Artillery Range Finder and Relocator Co.	Do.
Projectile with detachable sabots	W. S. Davis	Do.
Shell filled with hydrogen gas	W. T. Forbes	Do.
Dirigible torpedo	A. Watkins	Do.
Rapid-fire gun	Z. T. Obenshain	Do.
Floating mortar battery	Pneumatic Gun Carriage and Power Co.	Do.
Self-propelled armored car	B. H. Kuhns	Do.
Operating torpedoes, method of	D. H. Mowen	Do.
Projectile, adjustable sight, etc	W. W. Watkins	Do.
High-explosive shell	Wm. E. Pugailey	Do.
"Recoil-operated automatic ordnance"	A. A. McKnight	Do.
Portable steel breastworks	B. D. Crawford	Do.
Four-pointed nonglancing shell	J. M. Craddock	Do.
Smoke-producing shells	I. A. Smith	Do.
Dynamite gun	Alfredo Rosa	Referred to Chief of Ordnance.
Hardened copper, process	C. L. Leiby	Tested and not recommended.
Magnesium to be loaded in shells	Aluminium und Magnesium Fabrik	Postponed.
Double shell for powder and oil	J. A. Le Sneur	Not recommended.
Transmission of power on rays of search light, comments on.	James Coker	Filed.
Aerial torpedo.	Carl Klose	Not recommended.

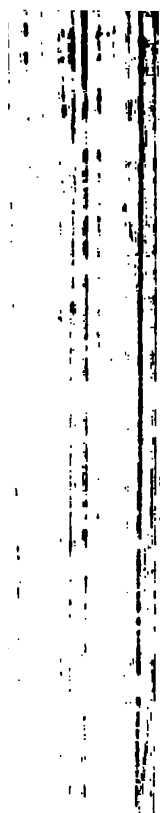
Subjects considered during the year—Continued.

Subject.	Proposed by—	Action.
Rest for small arms.....	W. E. Pedley.....	Not recommended.
Photographic return shell.....	J. H. Wendell.....	Do.
Dirigible torpedo.....	A. M. Barber.....	Do.
Dynamite shell.....	Theodore Hawkins.....	Do.
Rapid-fire centrifugal-force gun.....	H. Hellenga.....	Do.
Bomb-dropping device.....	H. L. Dunlap.....	Do.
Device to prevent cutting of mine cables.....	Alex. A. Knight.....	Do.
Compound shell.....	Henry M. Williams.....	Do.
Alteration in breech-mechanism of small arms.....	Ansley H. Fox.....	Under consideration.
Aerial bomb-dropping device.....	Geo. W. Mapes.....	Not recommended.
Offer to sell canal.....	Florida Coast Line Canal Transportation Co.	Do.
Rapid-fire gun.....	P. F. Ankrom.....	Do.
Observation tower.....	J. G. Weatherly.....	Do.
Double accelerating projectile.....	J. T. Mills.....	Do.
Explosive bombs and projectiles.....	Valeriano O'Bando.....	Do.
Breech-loading gun and projectile.....	J. M. Stone.....	Do.
High explosive shell.....	Joseph W. Balet.....	Do.
Flexible sabot for projectiles.....	Alfred Tshinkel.....	Do.
Dynamite gun, 3-inch.....	Dynamite Ordnance and Armaments Co.	Allotment
Dynamite gun, 5-inch.....	Sims-Dudley Defense Co....	Do.
Inflammable composition.....	R. F. Cooke.....	Not recommended.
Projectile.....	Arthur R. Colburn.....	Do.
Destroying submarine mines, method of.....	John Quinn.....	Do.
Projectile.....	B. F. Averill.....	Do.
Torpedo operated on cable.....	F. A. Carmony.....	Do.
Range finder and submarine boat.....	Louis S. Tuttle.....	Do.
Submarine boat and automobile torpedo.....	Chas. J. Patrick.....	Do.
Use of quantities of naphtha in harbor defense.....	Geo. E. Crater.....	Do.
Handling and firing high explosives, method of.....	John R. Hamilton.....	Do.
Multicharge shell.....	A. M. Peck.....	Do.
Gasoline shell.....	J. H. Ware.....	Do.
Range finder.....	G. O. Holman.....	Do.
Magnetizing cannon.....	C. P. Carlin.....	Do.
Shot and shell, combined.....	N. E. Holcomb.....	Do.
War rafts, plans for.....	W. H. K. Minnix.....	Do.
Floating fort.....	Patrick Duffy, jr.....	Do.
Portable shield.....	Levi Black.....	Do.
Accelerating rocket projectile.....	R. C. Lewis.....	Do.
Mounting guns on tracks.....	James Davis.....	Do.
Bell-shaped shield for quick-firing guns.....	C. B. Jessen.....	Do.
Double-acting bombshell.....	A. O. Tannerberg.....	Do.
Portable shield for light artillery.....	C. M. Howe.....	Do.
Shield propelled by engine.....	F. G. Bennett.....	Do.
Base fuse.....	Justus Day.....	Do.
Taper-bore cannon.....	John W. Mead.....	Do.
Balloon to drop dynamite bombs.....	Henry H. Dingman.....	Do.
Shell loaded with red pepper.....	L. B. Couch.....	Do.
Projectile with inserted steel point.....	G. H. B. Hooper.....	Do.
Shells loaded with noxious gas, red pepper, snuff, etc.	Joe. Atkins.....	Do.
Torpedo tubes mounted on cars.....	J. A. Miller.....	Do.
Steel revolving turret.....	J. H. Kinter.....	Do.
Bombshell.....	E. H. Cowan.....	Do.
Small arms, change in stock.....	C. G. Hall.....	Do.
Armored car.....	J. W. Bernstein.....	Do.
High-explosive shell.....	C. L. Melcher.....	Do.
"Trap shell".....	J. A. Hultgren.....	Do.
Portable breastworks.....	Z. M. Little.....	Do.
Multicharge projectile.....	B. R. Hooker.....	Do.
Revolving gun shield.....	C. F. Meyer.....	Do.
Mine destroyer.....	C. M. Ingersoll.....	Do.
Glass projectile.....	A. G. Heinle.....	Do.
Plan to electrocute an enemy.....	G. W. Blakey.....	Do.
Gasoline shell.....	Roe & Perry.....	Do.
Torpedo.....	W. O. Bramblett.....	Do.
Armor plate.....	S. Victor.....	Do.
Plan for destroying mines by nitroglycerine.....	Chalmers Prentice.....	Do.
High-explosive shell.....	J. A. Carpenter.....	Do.
Glass-pointed, high-explosive shell.....	M. Jacobs.....	Do.
Explosive shell.....	H. D. Van Campen.....	Do.
Multicharge projectile.....	Wilkins Stevens.....	Do.
Magazine attachment for rifle.....	Wm. M. Crow.....	Do.
Four-cornered bullet.....	John Kauck.....	Do.
Explosive shell.....	W. T. Pool.....	Do.
Projectile, with shoulder to prevent penetration.....	R. T. Yardley.....	Do.
Catapult for throwing high explosives.....	Theo. F. Krueger.....	Do.
Device employing catapult principle.....	Robert Williams.....	Do.
Throwing dynamite by springs, etc., method of.....	G. Jared.....	Do.
Lever for lifting weights, application of.....	S. Victor.....	Do.

Subjects considered during the year—Continued.

Subject.	Proposed by—	Action.
Horizontal base range finder, Squier-Crehore, report on.	Board on Regulation of Seacoast Artillery Fire.	Filed.
Seven-inch howitzer for high explosives.	Hudson Maxim.	Specifications called for.
Sectional gun.	American Sectional Cannon Co.	Not recommended.
"Eophone."	Frank Della Torre.	Do.
Sectional gun.	P. Asher.	Do.
Shell to contain asphyxiating gas.	Johnston & Lewis, attorneys	Do.
Torpedoes, method of operating.	C. F. Finlayson.	Do.
Mine igniter and signal.	Carl Klose.	Do.
Multiple-gun construction.	M. C. Taylor.	Do.
Small arms, alteration in.	Edmond Redmond.	Do.
Breech mechanism and magazine.	E. C. Ernst.	Do.
Minimum-recoil carriage and high-explosive shells.	George W. Le Vin.	Do.
Subcaliber barrels for small arms.	R. M. Towson.	Do.
Small arms, change of barrel.	E. Whitcomb.	Do.
Shell to contain sulphite carbon.	Thos. B. Johnson.	Do.
Signaling device.	S. L. Phillips and Geo. G. Tilden.	Do.
High explosive, "Rex"	Hiram P. Tuttle.	Test of approved.
Disappearing carriage.	J. A. Howell.	Undergoing test.
Shell.	P. A. Clemants.	Not recommended.
Portable range finder.	J. B. Wilson.	Do.
Portable gun shield and cannon within cannon.	J. Covel Cary.	Do.
Projectile within a shell.	W. M. De Loach.	Do.
High-explosive shell.	J. A. Laycock.	Do.
Torpedo, double mortar, etc.	E. Friedli.	Do.
Method of causing vacuum in dynamite guns.	W. W. Priestly.	Do.
Petroleum shell.	H. G. Dunstan.	Do.
Exploding shells on contact, method of.	C. T. Clark.	Do.
Projection of high explosives, and pneumatic projectiles.	E. G. Gary.	Do.
Projecting high explosives, method of.	C. H. Osborn.	Do.
Attachment for small arms, for cutting wire fences, etc.	Adolph Hamaek.	Do.
Projectile for destroying barb-wire fences.	Will B. Smith.	Do.
Wire-cutting projectile.	W. F. White.	Do.
Apparatus for destroying torpedoes.	Wienand Houseman.	Do.
Shot distributor.	J. O. Bechdolt.	Do.
System of operating high explosives.	J. D. Hughes.	Do.
Explosive shell with clockwork fuse.	Geo. H. Peterson.	Do.
Shell containing liquid.	W. F. Pattison.	Do.
Multicharge shell.	C. H. Ogborn.	Do.
Portable breastworks.	Wm. D. Riley.	Do.
High explosive shell.	C. G. Abbott.	Do.
Projectile with propelling charge in base.	C. L. Arthur.	Do.
Shell to contain oil or canister.	David W. Giffin.	Do.
Shell to contain cayenne pepper, snuff, etc.	W. H. Bray.	Do.
Armored turret.	J. Q. Adams.	Do.
Sectional tube for 18-inch gun.	Z. T. Hoskins.	Do.
Shells loaded with carbonic-acid gas.	Geo. H. Burgess.	Do.
Sighting rifles by mirrors.	Burnett Hamilton.	Do.
Perpetual-motion machine.	C. H. Callahan.	Do.
Projectile not deflected by water.	Aug. Wilson.	Do.
Projectile with wings.	Watson Davis.	Do.
Projectile, chain shot, etc.	C. A. Bouck.	Do.

**NATIONAL HOME FOR DISABLED VOLUNTEER
SOLDIERS.**



NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, D. C., November 30, 1898.

SIR: I have the honor to report that, under instructions from the Secretary of War, I made the annual inspection of the National Home for Disabled Volunteer Soldiers, its records, disbursements, management, discipline, and condition, as required by the act of August 18, 1894, covering a period of almost uninterrupted application from August 9 to November 12, 1898. On this tour I was accompanied by Mr. William T. Kent, the accountant of this department.

The government of this institution is vested in a board of fourteen managers, of whom three—the President of the United States, the Secretary of War, and the Chief Justice—are members by virtue of their office, and eleven are elected from time to time by Congress for a term of six years. The Board of Managers elects its officers, consisting of a president, two vice-presidents, and a secretary, from its own members; and all but the president and secretary serve without compensation. The Board elects, in addition to these officers, from persons not members of the Board, an inspector-general, an assistant inspector-general, and a general treasurer. The president has his headquarters in Hartford, Conn., and the secretary is located at Princeton, Ill., and the Board meets from time to time at such places as may be agreed upon.

The National Home for Disabled Volunteer Soldiers is composed of eight Branch Homes—the Eastern, Central, Northwestern, Southern Western, Pacific, Marion, and Danville—located in as many different States and each under the immediate charge of its own officers appointed by the Board of Managers, and has a population in the aggregate of over 19,000. The last-named Branch was authorized by the act of June 4, 1897, and is still building, and at date of inspection was not yet ready for the reception of disabled volunteers.

At one of the Branches—the Central, which is the largest—a general depot is maintained for the manufacture and distribution of uniform clothing, underwear, bedding, tableware, and blank forms.

The tour of inspection began with a visit to the Eastern Branch and terminated with the examination of the disbursements of the general treasurer of the Home at the Hartford office. A report of inspection of each Branch and of the general depot and various statistical information in tabular form are appended, and attention is respectfully invited to these reports for detailed information or special phases affecting individual branches.

OFFICERS.

A praiseworthy desire for an economic administration of affairs pervades the entire institution, and, indeed, excellent results have been obtained without uniform methods. The Branch officers have shown commendable zeal and efficiency, and their efforts seem directed with

kindly consideration toward the welfare of the nation's wards and a strict compliance with the laws and regulations, and they generally maintain a very satisfactory state of discipline.

Under section 4829, Revised Statutes, the officers are appointed by the Board of Managers from honorably discharged officers and soldiers, and shall consist of a governor, a deputy governor, a secretary, and a treasurer, and such other officers as the managers may deem necessary. This law is mandatory, but neither a deputy governor nor a secretary was found at any of the Branch Homes; and the appointments do not seem to have been made on definite lines. For instance, one Home only has an inspector, two have an adjutant, five have a quartermaster who is also commissary of subsistence, and at one the treasurer performs the duties of quartermaster and commissary; and in the matter of compensation the chaplains receive an annual salary through six intermediate grades ranging from \$500 without quarters to \$1,500 with quarters, apparently with little regard to the population of the Branch.

It is thought that if a deputy governor or inspector were added to each Branch to make daily inspections of all matters affecting the comfort and care of the men and look after their conduct and cleanliness, it would promote discipline and contentment. Frequent and careful inspections tend to remedy or prevent evils and allay restlessness by inspiring the men with the confidence of personal attention by some one in authority.

BENEFICIARIES.

The purposes of the Home are well understood and are a striking illustration of the paternal care which this Government generously bestows upon those who came to her rescue in the hour of need and now in turn require assistance.

The records of the several Branches show that the average number of officers and members present and absent during the past fiscal year was 23,345, which is a gain of 664 over the number reported for the previous year. Of these an average of 18,553 was constantly present and 4,792 constantly absent. Some of the absentees have not lived at the Home for years, and apparently remain on the rolls for the purpose of having the Branch treasurer collect and remit their pensions or reserving a convenient place at the Home for future emergency, and thus swell the figures in the aggregate. As the Home has been established for the purpose of receiving and caring for veterans who are unable to earn a living by reason of their disability, it seems fair to fix a limit after which such unaided absentees shall be dropped from the rolls, in order that their places may be assigned to others more urgently in need of the benefits of the Home. About half of the men present were seen in line at review.

Section 4832, Revised Statutes, as subsequently supplemented by the act of July 5, 1884, establishing the Western Branch, the act of March 2, 1887, establishing the Pacific Branch, and the act of July 23, 1888, establishing the Marion Branch, define the persons entitled to the benefits of the Home. Since then the Spanish-American war has been fought, and doubtless the time is not far distant when the more unfortunate survivors of that war will be compelled to look to the Government for shelter, food, and clothing. It is therefore recommended that the necessary legislation be enacted to admit honorably discharged soldiers and sailors of the Spanish-American war to the Home for Disabled Volunteer Soldiers, and that timely provision be made for their reception. The number of veterans applying vainly for admission and

now waiting anxiously to have the doors of the new Branch at Danville, Ill., thrown open to them will, it is thought, more than fill that Home, and while easing the pressure somewhat, applications for admission must be expected to continue for some years. The recent war will probably change the situation considerably, and no doubt Congress in its wisdom will make suitable provisions for any emergency that may arise.

Should it be found necessary to establish another Home, it is suggested that recognition be given the South, which, on account of its mild climate and economy in construction and fuel and other expenses, offers advantages over many Northern States.

The members seem generally well behaved and contented, and complaints were remarkably few, considering the large number of men of different nationalities, creeds, and temperaments, and those made were mostly trivial or personal or the result of perverted conception.

THE SICK.

In a Home composed of men disabled by wounds, sickness, or otherwise the sick rate must be expected to be large and constantly increasing, and this fact should be borne in mind in establishing new Homes. The hospitals, therefore, are growing and gradually absorbing other available room. The older Branches have already been compelled to add numerous extensions and annexes for the reception and care of the sick, and quarters for convalescents and extremely old men have been found necessary.

The records show that during the past year the average daily number of sick was 2,010 in hospital, 883 in quarters for convalescents, and 471 at sick call, which is about 18 per cent of the average present. They seem to receive proper care and attention from an excellent corps of surgeons and nurses. It was noted that at the hospitals female nurses had been introduced, who gave a decided air of cleanliness and solicitude for the sick, the old system of having the veterans nurse their sick brethren having been abandoned. It seems a decided improvement to have none but trained female nurses employed for these men. How well they can do this work the recent war furnishes ample proof. But what these Homes need most is a central medical authority, either as a salaried member of the Board of Managers or an assistant to its president, to supervise medical administration, especially in the purchase and use of the medical supplies, and effect uniformity of methods. Specially good features of one hospital under the present system are lost to the others, and each chief surgeon is left to his own devices, though he seems to do the best he knows how in his own way. With over 3,000 daily sick and more than 700 hospital employees at seven different Branch Homes, the necessity of a central medical supervision is apparent. This is a matter that seems to require Congressional action for its consummation.

The mortality during the year has been 50.9 per 1,000 of the average present and absent, which is slightly less than for the previous year (as was also the sick rate), and speaks well for the medical administration, as with the advancing age of the veterans and lack of infusion of young blood a higher sick and death rate from year to year seems natural until the last has passed away.

Attention is invited to the desirability of making the last resting place of these old soldiers national in name and methods. Each of the Branch Homes has a burying ground on its reservation, except the

Southern, which buries its dead, like that of the Home for Regulars, at a neighboring national cemetery. Evidently, the branch of the Government which has charge of the national cemeteries is best fitted to take care of the last resting place of these veterans and relieve the Home of that duty. In the end it must do so.

DISBURSEMENTS.

There are four distinct classes of funds relating to the Home:

1. *The general fund*, which consists of the annual appropriations made by Congress for the support of the Home, the receipts from the sale of condemned stores, clothing, and other articles purchased from this fund, and the effects of deceased members. This fund is accounted for by the treasurers through the War Department to the Treasury Department.

2. *The post fund* arises from the sale of beer, cigars, and merchandise at the beer halls and Home stores. This fund is accounted for by the Branch treasurers to the president of the Board of Managers, and does not come to the War or Treasury Departments.

3. *The pension fund* consists of the pensions of the members sent to the Branch treasurers by pension agents for distribution to the pensioners. While vouchers are taken for disbursements of this fund, only an account current is sent to the Hartford office.

4. *The special funds*.—These are the balances now remaining of certain legacies to the Home and a sum paid by the heirs of the late General Butler to satisfy a claim of the Home against his estate. This fund is in the custody of the president of the board. Vouchers are taken for disbursements, but there does not seem to be any further accounting.

There is also another fund, known as the State-aid fund, arising from annual appropriations made by Congress for the support of the various State Homes. This fund is disbursed by the general treasurer of the National Home and is accounted for by him in the same manner as the general fund.

The balances of all these funds for which the treasurers are accountable are deposited with authorized depositories, but the special funds are kept in a safe-deposit box.

The general treasurer is bonded to the United States, but the Branch treasurers, by whom about 82 per cent of the appropriations for the Home, amounting to over \$2,000,000 last fiscal year, was disbursed, are bonded only to the general treasurer. The funds advanced to these Branch treasurers are public funds, and they should therefore be bonded to the United States.

At some Branches the practice prevails of sending out checks before the vouchers are properly signed. This may cause delay in the transmission of accounts and leaves the disbursing officer without proper evidence for the disbursement until the receipted voucher has been returned to him. In other departments of the Government vouchers are invariably signed and received by the disbursing officers before they make payments.

The best business methods suggest that all checks should be promptly forwarded for deposit as soon as received. Section 3620, Revised Statutes, provides that it shall be the duty of every disbursing officer having any public money intrusted to him for disbursement to deposit the same with the Treasurer or some authorized depository. At the recent inspection of the general treasurer over \$100,000 was found in his personal possession, consisting of checks, some of which were nearly a month old, issued in his favor by the several Branch treasurers.

It is believed that it is possible for an arrangement to be made, as now obtains at some of the Branch Homes, with all the railroad and steamship companies, under which a member traveling at his own expense may be able to purchase his ticket at half fare direct from the transportation company, and do away with the cumbersome method now in use at some of the Homes.

At some of the Branch Homes the amount transmitted for the payment of employees in the early days of the fiscal year was insufficient, and caused some inconvenience.

The absence of a system of property accountability, it seems, could be improved. After the money is expended and the articles purchased are presumed to come into the possession of the Home, there does not appear to be any further supervision, and the officer charged with its custody may or may not charge himself with it or with all apparently received. Altered requisitions and requisitions for unusual amounts appeared, and the effort seemingly in view was to have the record agree with the property rather than that the property should agree with the record.

The shop and internal accounts are apparently a system of vouchers of debit and credit entries and of bookkeeping in which no money is involved. Doubtless they are considered of some practical or theoretical value, else so much actual labor and money would not be expended on them. The internal accounts assume to show how much money expended under one head has accrued to the advantage of another; thus when the Home teams do some hauling for the mess hall the farm account is credited with an assumed, not the actual cost of the work, and the subsistence account is charged with a like amount. In the shop accounts the shop is charged with all labor and material furnished it by the Home, and credited with all labor and material expended for the Home, and 10 per cent added to show the apparent profit the shop has been to the Home.

GROUND AND BUILDINGS.

The general condition and police of the grounds and buildings was exceptionally good, and there is an evident effort on the part of the officers to make and keep them attractive. The difference in construction between the younger and the older Branches is notable. At the former the dormitories are uniformly modern, well arranged, and sanitary. At the latter, a number of old wooden buildings, built over and illy arranged and in need of constant repair, are still in use beside modern barracks of later construction. It would be desirable to tear down these unsanitary frames and replace them with modern bricks. Overcrowding was noted at several Homes and at a time when the membership is usually lowest. So it seems additional barracks are urgently needed, unless it is deemed preferable to ease the crowded condition by extending the outdoor relief authorized by section 4833, Revised Statutes, and now granted to a limited number of veterans, but desired by many more. This system is in successful operation at the Home for Regulars in the District of Columbia, where nearly one-third of its members receive such relief.

At some of the Branches the storage facilities are inadequate, and clothing and other property have to be stored in cellars and other unsuitable places.

The value of real and personal property held by the National Home for Disabled Volunteer Soldiers now amounts to many millions, and is constantly increasing. The National Government appropriates annu-

ally several millions for the maintenance of this which goes toward the acquisition of new property but the title to this vast estate is vested, under Statutes, in the Board of Managers, with power to convey, and sue and be sued in courts of law and equity.

SUPPLY DEPARTMENTS.

These embrace the quartermaster's department, which has charge of the buildings, clothing, bedding, and subsistence department, which looks after the property of the Central Branch each of these departments has in charge of a special officer; at the other Branches, which has neither a quartermaster nor a commissary as a separate officer, the quartermaster has charge of the subsistence department. The importance of these departments is due to the amount of property handled and of food consumed, and careful attention to insure the greatest possible economy and a divorce of the two and the appointment of a commissary at each Branch Home.

The dining halls are noted for their neatness and the food seems well prepared and served, though it is not adapted for feeble old men. At one of the Branches the members dine in a barrack by themselves with special diet for them, for contentment and comfort of those members. I have seen an expert cook familiar with the elements of physiology, who superintend the culinary department, and that the food is added to the daily ration and served once a week. At present this luxury is confined mostly to the Central Branch.

The large per cent of crockery annually broken is due mainly to its brittleness and not nesting properly. It is thought that it would be economical to supply a better quality of crockery.

The main features of the quartermaster's department are the amount and variety of property and its volume, which could perhaps be advantageously simplified by a system of accountability, especially in the system of requisitioning issued to members. The public property at the Branches is all marked for ready identification, though it is mixed by side with private property, and no return is made for the authority of property purchased or acquired, remaining on hand at stated intervals, as is the case with the property of the Government, except in the case of the clothing, tableware, and stationery received from the Government, and bedding, which directly affect the comfort of the members, are generally satisfactory and of good quality. It would be a desirable improvement were some distinctive marks on the summer wear, and the trousers made at the Branches to be wider in the waist for heavy men. The barracks are but 2½ feet in width, are occasionally too narrow and the issue hereafter of a 3-foot cot only, like those in the hospitals, is recommended. It will add largely to the comfort of men without a corresponding increase in cost.

The utmost economy seems exercised in the management of the large amount of property, and the wear and tear of the property is phenomenal, and the efforts of the officers in this department are commendable.

CONCLUSION.

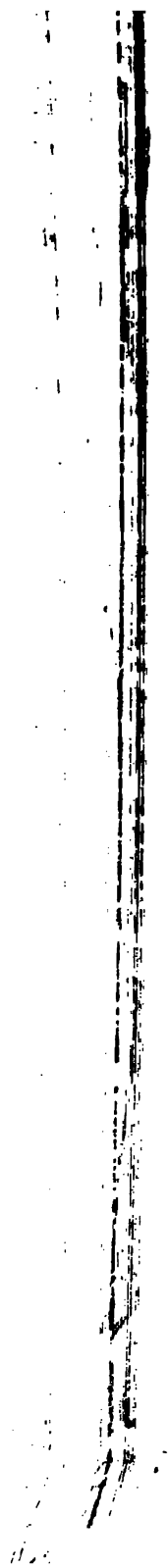
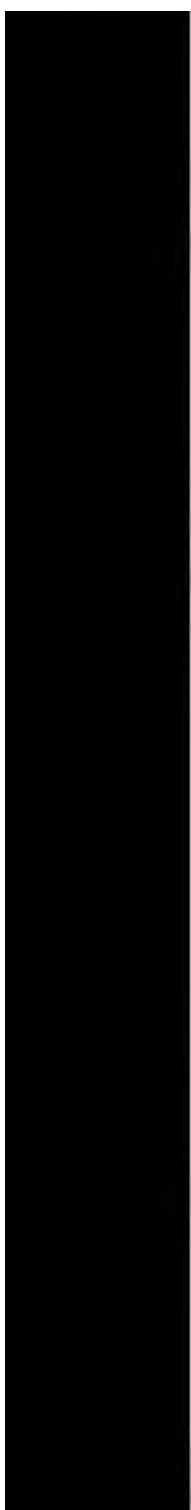
In closing this report, it seems appropriate to invite attention to the commendable and earnest efforts of the Home officials to make this admirable institution a home indeed for the homeless, the sick, and the feeble old veterans. They not only receive acceptable shelter, food and clothing, and careful medical attention, but their spiritual welfare is diligently looked after, and numerous innocent amusements and ample reading matter are provided. And such as are able and willing may be employed under pay; and no pains seem to be spared to make the men contented, as it is the intention of the Government they should be.

The work of the inspector was materially advanced by the courteous assistance of the officers of the Home, and to them my sincere thanks are due.

Respectfully submitted.

O. H. HEYL,
Major, Inspector-General.

The INSPECTOR-GENERAL,
United States Army.



APPENDIXES.

A. Subreports concerning the several Branch Homes:

1. Eastern Branch.
2. Northwestern Branch.
3. Marion Branch.
4. Central Branch.
5. Southern Branch.
6. Western Branch.
7. Pacific Branch.
8. General Depot.

B. Statistical tables, etc.:

1. Population.
2. Chart showing average present at each Branch.
3. Chart showing average present at all Branches.
4. Number present and absent for each ten days.
5. Census at date of inspection.
6. Personnel reported at inspection.
7. Gain in average present for nine years.
8. Discipline.
9. Amusements: Library, band, theater, games.
10. Societies among members.
11. Keeley, Wherrel, or gold cure.
12. Religious services.
13. Farm.
14. General fund: Receipts, expenditures, and improvements.
15. Employees under general fund.
16. Employees under post fund.
17. Cost per capita for maintenance.
18. Post fund business.
19. Pension fund.
20. Pensioners.
21. Recapitulation of funds received.
22. Quartermaster department: Barracks, heating and lighting, beds and bedding, storehouses, property, clothing, etc.
23. Laundry.
24. Fire department.
25. Engineer department: Water, sewerage, steam, lighting, and cold-storage plants.
26. Commissary department: Storehouses, dining halls and kitchens, issues to dining halls and hospitals, crockery, garbage, outdoor relief.
27. Principal articles of food: Contract price, amount purchased, and place of purchase.
28. Medical department: Patients, diseases, deaths, funerals, employees, sanitation, medicines, insane, blind, etc.
29. Money accountability of Branch treasurers.
30. Money accountability of general treasurer.
31. Money accountability of president of Board of Managers.
32. Roster of officers of Branch Homes.

APPENDIX A.

NO. 1.—REPORT OF AN INSPECTION OF THE EA AUGUST 11 TO AUGUST 14,

This Branch Home comprises 1,754 acres, situated on the River, about five miles from Randolph, Me. Its commander, a governor, a treasurer, a quartermaster and commander and a surgeon, who seem efficient and painstaking. Samuel H. Allen, was appointed November 1897. Stephenson resigned.

The Home is overcrowded; every available room was filled, and cellars and closets were used for hospital, too, needs enlargement; it had but one barracks are in need of repairs, painting and good sanitary closets should replace the old and obsolete. It would be well to erect a temporary light structure with two companies for use during summer while the barracks are being put in proper condition, or, if necessary, tents, framed and floored, for that purpose. A refrigerator were added during the year.

The average number of officers and men during the year was 2,042. The highest attendance was 2,137 and the lowest number 1,487 per day, the greatest number absent at one time 349. On June 30, 1898, 644 members were present and 123 had been absent one year.

The total number cared for during the year is 2,042. The average age of the members as 61 years.

At date of inspection there were present 2,137 and absent 506 members, showing a total of 2,643. There were then two temporary members. There were then two in the hospital and none in the barracks.

On August 14, 1898, a review of the members of the command present being in line. The appearance was good and made a favorable impression.

Discipline seems to be fairly good. The principal offenses consist of drunkenness, without leave, and the penalties are from six to sixty days' labor without pay. Unruly members are confined to the guardhouse, but ordinarily no member is confined more than four hours. There were none in confinement. The reports show that 73.3 per cent of the average have been punished. Passes are freely granted to those of good behavior.

The records in the adjutant's office show improvement. The record of applications by letter were sent to the local magistrates.

record be simplified by omitting the personal description, social condition, and religious matters that have no bearing on the eligibility for membership? If the applicant is admitted, this data is recorded in the military history; if he is not admitted, the record is without value. Would not the entry in the record of military history of the number of the grave in which the deceased member is interred dispense with the burial record, as that book contains no other data than is already recorded in the history?

It is suggested that possibly much time would be saved in searching the record of persons discharged from other Homes, if that record were kept as the State register is kept, instead of alphabetically.

These include theater, band, and clubhouse; billiard, smoking, card, and reading rooms, and a library. The seating capacity of the theater has been increased from 1,100 to 1,200. Its management is under the charge of the council of administration of the post fund. There were 48 performances during the year, mostly comedies and melodramas. The expenses for these performances amounted to \$8,175; and the revenues from admission, which is 10 cents for members and 25 cents for others, were \$1,242.38. Under recent orders no admission fee is now charged to members. The theater was in good condition.

The band was maintained during the entire year with an average of 21 musicians. It gave 276 concerts, of which 140 were indoors, all well attended. The programmes comprise standard overtures, marches, and popular and national airs. The total cost of the band for the past year has been \$8,413.09.

The library was in good condition and contained at date of inspection 9,213 volumes. The circulation reported during the year was 29,977 books, giving an average of nearly 15 books per member. Books taken from the library must be returned in one week, and no member can have more than one book in his possession at any one time.

There are no outdoor games nor boating; the indoor games embrace billiards, pool, cards, checkers, and dominoes.

Protestant services are held every Sunday, and Catholic on Sundays or holy days in the Home chapel, which has a capacity of 400. The services are reported well attended. None of the chaplains live on the Home grounds.

The farm comprises 500 acres, with 4 stables for horses, 4 barns for cows and hay, and 2 sheds for carts; 40 public vehicles, including 8 wagons, 10 carts, 14 sleds, 1 hearse, 2 carriages, 4 sleighs, and 1 barge; 13 horses and 70 cows, 23 heifers, 6 calves, 2 oxen, and 1 bull. The farm stock on June 30, 1898, was valued at \$6,400. Animals no longer required are condemned and sold at public auction. The principal products were:

Milk (35,980 gallons).....	\$7, 209. 00
Hay and oats	3, 202. 70
Ensilage	1, 750. 00
Vegetables.....	913. 90

Total 13, 075. 60

The cost of maintaining the farm proper is reported as \$7,444.02.

DISBURSEMENTS.

The accounts and disbursements of the treasurer were examined from July 31, 1897, the date of last inspection, to August 13, 1898, and involved \$688,846.26 pertaining to the general, pension, and post funds.

The transaction concerning these funds may
lows:

On hand July 31, 1897:

General fund.....
Pension fund.....
Post fund.....

Received since:

General fund.....
Pension fund.....
Post fund.....

Total to be accounted for

Expenditures:

General fund.....
Pension fund.....
Post fund.....

On hand

which was all on deposit in bank, except \$156.88.

The receipts during the year
General fund. account of this fund were \$268
tures \$259,589.52, or about \$1
average present. At the inspection of this
for \$1,063.54, for which no vouchers were pr
that the checks for this amount, represented l
sent out, with vouchers for receipts, and had
rule in the service is that no money shall be
receipt for the same.

The ready inspection of the accounts was so
practice of one of the depositories reporting
order of payment instead of serially, as is usu

The receipts from posthumous sources durin
and the disbursements \$2,650.39. The policy
of claims presented by heirs for the effects of
a sufficient sum to pay them has been receive
other member or members during the same y
made seems to work hardship to needy claiman
why, since the Home authorities have received
paid them. The law does not seem to conte
even under the construction placed upon it ca
than the use temporarily of funds for the pa
the appropriation for clothing from funds approp
While all claims should be promptly met, l
should receive more consideration. A large
the previous year compelled under the rule ad
to wait eleven months for payment.

The number of employees aut
Employees. fund, including officers and civ
and the average employed as 2
cent of the average present. The compensat
23 per cent of the disbursements and averag
which is higher than at most of the other Brai

The clerical force in the treasurer's office see
and the accounts and records so far as the ti
for them in good shape.

Purchases. The reports show that 373 purchases, aggregating \$9,894.64, were made in open market, and included such articles as fruits, fresh vegetables, lamb, turkey, etc. The principal articles of food bought under contract were obtained from dealers in Maine, Massachusetts, and New York. The price of coffee and tea bought in Boston was generally lower than at the other Branches, and that of fresh beef obtained from Augusta, Me., higher.

Pension fund. At the close of the year there were 2,332 pensioners on the rolls, of whom 1,744 were present. Their pensions ranged from \$6 to \$45 per month. The disbursements on account of pensions during the year amounted to \$307,026.81, leaving a balance due the pensioners of \$10,857.62.

A more liberal policy in the payment of the pension money to the members seems to obtain here, and, it is said, without detriment to the discipline and to contribute more to the contentment of the members. At date of inspection the balance to the credit of this fund was \$10,488.18, of which only \$361.83 was due to members then in the Home, and \$5,184.50 was due to members at the Government Hospital for the Insane and others whose present addresses were not known; and the remainder, \$4,941.85, represented accrued interest on the bonds in which the pension fund had formerly been invested. Against this a shortage of \$600 coming over from the former treasurer's account was charged.

Post fund. The principal revenues accruing to this fund are derived from sales at the Home store, restaurant, and beer hall, and of tickets at the theater. The receipts from the sale of beer amounted to \$34,748.05, which gave a profit of 171 per cent on the outlay. It is reported that 61,168 gallons of beer were consumed during the year, which gives an average of about two-thirds pint of beer per man per day.

The vouchers taken for the disbursements of this fund are not made in duplicate, and as those for the quarter ending June 30, 1898, were reported absent in Hartford, Conn., the inspection of the accounts for that quarter was defeated.

The number of men employed under this fund averaged 54, which was about 2.6 per cent of the members present during the year. The average compensation paid these employees is reported higher than that of the employees under the general fund.

SUPPLY DEPARTMENTS.

Barracks. The dormitories are generally too crowded, and those on the third floor too high for old men. There were 138 men sleeping on floors, 75 in attics, and over 200 in places not originally intended for sleeping. The floor space per man averages about 51.4 square feet, and in one company is reported as low as 41.2 square feet. There are no bath tubs in barracks. A general bathroom with 29 bath tubs is located on the second floor of the laundry building, where all of the men bathe once during the week. Each tub averages about sixty men. There is also a general toilet room over the laundry, containing 33 hoppers and 16 urinals, for use during the day, the hoppers and urinals in the several barracks being used chiefly at night. More dormitory room seems needed.

The barracks are heated by steam, mostly coils or circulation, with a few radiators, and lighted by electricity, furnished by the Augusta Light and Heat Company under contract.

The lockers in use are mostly common chamber than the lockers used elsewhere.

There is no record kept of the amount expended.

The supplies and stores on hand are satisfactory, but the storage facilities are in other respects objectionable,

construction, safety from fire, and dampness. However, occurred on account of poor storage.

Inventories of property and stores are reported yearly, but returns are not made to of property received from the general depot, the property received from other sources is compared the invoice values of property received from general depot, \$28,821.71; by purchase, \$179,713. The usual method is to inspect all supplies and then to take them up on the property books and kinds of stores, and issue them on proper which become vouchers of the transaction.

The Home property is not all marked, and a memorandum receipt from officers and others in their possession. The ultimate elimination of is accomplished by the action of an inspector.

A clothing account is kept with each member, articles being issued according to regulation, man, who is held accountable for each and every or worn the prescribed length of time. If it is at the end of the time allowed, it is retained by service. Members going on furlough are required into the quartermaster, who holds it. The following statement shows the clothing account

On hand July 1, 1897.....
Received from depot.....

To be accounted for.....
Issued during year.....

On hand June 30, 1898.....

The bedsteads in use in barracks are iron, 36 inches wide, which seems too narrow for space. Mattresses are cotton and reported to weigh 14

Unserviceable clothing and bedding are sold, pound during the past year being 2½ and 6 cent from this source was \$2,229.93. Worn-out shoes

The following is the bill of fare ending June 25, 1898:

Sunday.—Breakfast: Baked beans, brown bread, beef fricassee, potatoes, bread, butter, sirup, coffee, bread, butter, sirup, tea.

Monday.—Breakfast: Salt mackerel, potatoes, bread, sirup, tea. Dinner: Beef soup, vegetables, bread, butter, sirup, tea, butter, sirup, tea.

Tuesday.—Breakfast: Meat hash, bread, butter, sirup, beef, cabbage, beets, potatoes, bread, butter, sirup, coffee, bread, butter, sirup, tea.

Wednesday.—Breakfast: Baked beans, Graham bread, sirup, tea. Dinner: Mutton stew, crackers, pickles, bread, butter, sirup, tea.

Thursday.—Breakfast: Sausage, potatoes, bread, butter, sirup, tea. Dinner: Roast veal, potatoes, beet greens, bread, butter, sirup, cheese, apple sauce, bread, butter, sirup, tea.

Friday.—Breakfast: Codfish and cream, potatoes, bread, butter, sirup, coffee. Dinner: Fish chowder, bread pudding, bread, butter, sirup, coffee. Supper: Cornmeal mush, bread, butter, sirup, tea.

Saturday.—Breakfast: Bacon, potatoes, bread, butter, sirup, coffee. Dinner: Boiled ham, potatoes, lima beans, bread, butter, sirup, coffee. Supper: Prune sauce, bread, butter, sirup, tea.

To prepare and serve the food there are permanently employed in the kitchen about 21 men and in the dining hall about 43, supplemented by an average temporary detail of 17 men. The dining hall and kitchen were in good condition. It is reported that they are inspected weekly by the governor, the treasurer, and the surgeon, and almost daily by the quartermaster and commissary of subsistence. The capacity of the dining hall is 1,424, and tables have to be set twice for each meal. A few more sinks and steam kettles seem needed.

Swill and garbage, which amounted to about 8 or 10 barrels per day, were sold during the year at the rate of 10 cents per barrel, the total receipts being \$240.25.

The reports do not show that any of the members at this Branch received outdoor relief during the year.

From the labor expended on the shop accounts it would seem that they were regarded as of some value, but at this Branch they were found in a somewhat confused condition, owing, it was reported, to a change in the employees. Many erasures were noted, and in one account a considerable sum was credited apparently to make a more satisfactory showing. After stock is issued to the shops there seems to be no further accountability.

Laundry. Clothing is sent weekly to the laundry from each company in charge of the ward master, with a list, which is verified and signed by the foreman of the laundry, who is held responsible for the return of the clothing to each company. Ordinarily each man is permitted to send one shirt, one pair of drawers, and one pair of socks. Private underwear is laundered outside of the Home. To do the laundry work during the year required the services of 14 men and nearly a barrel of soft soap per day, and an expenditure for labor and material of \$2,116.

An examination of the laundry list furnished shows that during the past year the wash list per man per month averaged about 4 pillowcases and bed sheets, $3\frac{1}{2}$ shirts, $3\frac{1}{4}$ pairs drawers, slightly less than 1 pair of socks, $5\frac{1}{10}$ hand towels, and four-fifths of a roller towel.

Fire apparatus. The protection against fire consists of 12 hydrants, with sufficient hose and abundance of water, supplied by the Augusta Water Company; and each barrack is supplied with standpipes, hose, chemical pails, etc. The apparatus is reported adequate and in good condition, and tested monthly or oftener. The fire organization is composed of 12 men. There were no fires during the year.

Steam plant. The steam plant of the Home consists of six 40-horsepower boilers in the main boiler room, used for heating, cooking, hot water, and power; one 25-horsepower boiler at the opera house (run as low-pressure boiler), for heating the opera house, chapel, and clubhouse; two low-pressure boilers at the hospital, for heating purposes; one high-pressure 40-horsepower boiler in convalescent ward of hospital; and nine small low-pressure boilers located in barracks G and M, the headquarter building, and six sets of quarters occupied by officers or employees. Its cost is reported as \$5,600, and its cost of maintenance for the past year as \$23,304, or \$40.78 per horsepower.

Lighting plant. There is no lighting plant at the Home. The grounds and buildings are lighted by electricity, furnished by the Augusta Heat and Light Company, under contract, at the rate of \$7,000 per annum. There are 9 arc and 2,196 incandescent lights.

Cold storage. There is no cold storage, ice being harvested from a pond on the Home grounds, which, during the past year, furnished 649 tons of ice, at a cost of 37½ cents per ton.

MEDICAL DEPARTMENT.

The hospital is composed of one brick and two frame pavilions connected by covered passages and having a capacity for 288 patients. Adjacent to it is a small building used by convalescents, and capable of accommodating 40. The average daily number of sick during the year was 273 in hospital, 38 in convalescent company, and 75 at sick call. The total number of patients treated during the year was 2,680, and each case was treated an average of 43 days. The cost of the hospital ration, including extra diet, averaged 19.15 cents per day per man.

The principal diseases of local origin were pneumonia, acute bronchitis, and inflammatory rheumatism, aggregating 53 cases, and there were 11 cases of influenza and 6 of erysipelis.

Insane members are cared for in special wards in the hospital, provided with iron gratings in doors and windows and separate toilet facilities. There were 116 members showing indications of disordered minds during the year, of whom 48 were considered permanently insane and 14 were sent to the Government Hospital for the Insane. Occasionally the wards are crowded with these patients.

Nine members were reported totally blind, and 41 with an impaired eyesight, so as to be unable to read. One of the hospital attendants is employed to read daily to these blind members.

There were 105 deaths during the year, of which 20 occurred outside of the Home, giving a mortality rate of about 41.5 per 1,000 of the average present and absent. About 66.7 per cent of the members who died were buried at the Home cemetery, at a cost of \$23.99 per man, which is the highest reported by any of the branches. No allowance is made for funeral expenses of members dying outside of the Home.

The hospital force, including clerks, cooks, waiters, drivers, funeral escorts, cleaners, laborers, etc., averages 85, of whom 12 are civilians, which gives about one employee for every four patients.

There were 352 different kinds of medicines and preparations used in the dispensary, the principal ones being purgatives, diuretics, tonics, and cardiac and other stimulants. The expenditures for this purpose were \$6,275.11 during the year.

NO. 2.—REPORT OF AN INSPECTION OF THE NORTHWESTERN BRANCH, MADE AUGUST 18 TO AUGUST 21, 1898.

This Branch Home contains 382½ acres of rolling and well-shaded ground, situated about 4 miles from Lake Michigan near the city of Milwaukee. Its principal officers are a governor, an adjutant, a treasurer, a quartermaster and commissary of subsistence, and a surgeon, who have continued on duty during the year and seem to be capable and thorough in their duties.

This Home seems to be filled to its capacity. There were but 56

vacant beds in the barracks at date of inspection and 4 in hospital, while the reports showed 556 men absent, of whom 63 were absent without leave and fully as many more with leave for only one month. Should these men return suddenly, congestion must result. The conversion of the old hospital building into a barrack for convalescents will relieve the situation somewhat.

The average number of officers and members present during the year was 2,364. The greatest number present was 2,507 and the lowest number 2,160, showing a fluctuation in the average attendance of 347. The absentees averaged 434 per day, the greatest number absent at one time being 595 and the lowest 323. On June 30, 1898, 480 members were reported absent, of whom over 70 were absent on furlough for over a year, the longest term of absence being ten years. These men are carried on the records of the office and included among the number present and absent and go to swell the roll, while they seem to have no connection with the Home, except possibly to have the treasurer collect and remit their pensions.

The total number cared for during the year is reported as 3,518, and the average age of the members as 61.5 years.

At date of inspection, there were present 2,285 officers and members and absent 556 members, showing a total of 2,841 on the rolls, exclusive of 50 temporary members.

On August 23, 1898, a review of the members was held by companies. The ceremony was well performed, and about 72 per cent of the men present were seen in line, which is a larger proportion than noted at the other Branches.

Breaches of discipline consist almost exclusively of drunkenness, absence without leave, and fence jumping, and these seem to be the principal evils that the officers here and at other Homes have to contend with. None of the members were confined during the year, the sentences imposed being labor without pay for varying periods, which may be commuted at the rate of 20 cents per day. The moneys accruing from this source, and which amounted to \$147.85 during the year, are credited to the post fund. The reports show that 81 per cent of the average present were not punished.

Passes are granted in the discretion of the governor. Ordinarily, permission to be absent from 8 a. m. to 6 p. m. is given to members sixty days after admission who have not violated any of the Home rules, and privileged passes good for all hours after 8 a. m. are given to all members who by good conduct prove themselves worthy of trust and confidence. Bad conduct forfeits the pass privilege for three months. A second forfeiture extends over a period of six months, and a third forfeiture over an indefinite period.

Facilities for amusements and recreation comprise band concerts and theatrical performances, a library, social club, boating, billiards, cards, and other games.

The theater, which is at present being remodeled to increase its capacity, will, it is reported, seat about 850 persons when completed. Its management is confided to the chief clerk of the treasurer, under the direction of the council of administration of the post fund. There were 14 performances given during the year, chiefly light drama, the expenses for which were met from the post fund and amounted to \$1,425.18. As members are admitted free of charge, and outsiders are

not admitted, there is no revenue from the sale of seats. Occasionally the theater is used for lectures.

The band was maintained during the entire year with an average of 20 members, all civilians. It gave 411 concerts, of which 359 were out of doors, all reported well attended. The repertoire is varied, but popular music predominates, and national airs are included in every programme. The total cost of the band during the year has been \$7,770.69. No charges are made for admission to concerts.

The library was in good condition and contained 8,934 volumes at date of inspection. Books may be taken from the library, one at a time, to be returned in good condition within two weeks. The circulation reported for the year was 35,904 books, or an average of about 15 books per member. Books of fiction and travel and works relating to the war of the rebellion seem to be in greatest demand. The basement of the library is used as a card room. Other indoor games played are chess, checkers, and billiards, and facilities seem to be ample for all who desire to play.

There are no outdoor games; but there are 7 boats, which are at the disposal of members free of charge, and may be used by civilians at a rate of 5 cents per half hour for each person. The receipts from this source were \$79.90 and the expenditures \$19.13.

Religious services are held from seven to eight times per week in the Home chapel, which is reported suitable and has a capacity of 350. The services are reported well attended. The Protestant chaplain lives on the Home grounds, and the Catholic chaplain in Milwaukee. Services are also held by others interested in the spiritual welfare of these men.

The farm comprises 250 acres under cultivation with 17 different buildings, as employees' quarters, stables, barns, sheds, shops, etc., most of which are in need of reshingling; and there are 31 vehicles of all kinds, 22 public animals, 42 cows, and 43 sheep and lambs, and a number of fowls. The farm stock on hand June 30, 1898, was valued at \$3,500. Cattle, when no longer required, are condemned and sold; chickens are supplied to the hospital on requisition.

The principal products of the farm were:

Milk (32,335 gallons)	\$4, 203.55
Hay, ensilage, oats, etc	1, 879.17
Vegetables	1, 010.15
Cows, calves, and sheep	812.69
Ducks, chickens, and eggs	80.21
Flowers	14.65
Total	8, 000.42

Of these products the table was supplied to the value of \$5,293.91, and the remainder represents what was fed to the stock or sold. The cost of maintaining the farm proper is reported as \$3,960.

DISBURSEMENTS.

The accounts and disbursements of the treasurer were examined from July 31, 1897, the date of last inspection, to August 20, 1898, and involved \$692,889.72, pertaining to the general, pension, and post funds. The accounts and records of the treasurer's office were found in a very satisfactory condition, and admitted of ready inspection. Some inconvenience was experienced here, as at other Branches, on account of delay in not having approved contracts for necessary supplies available

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1129

at the beginning of the fiscal year, which entailed much additional labor and resort to unusual methods of purchase. The transactions concerning the various funds may be briefly stated as follows:

On hand July 31, 1897:		
General fund.....	\$2,926.40	
Pension fund.....	33,268.31	
Post fund.....	10,353.47	
		\$46,548.18
Received since:		
General fund.....	291,917.66	
Pension fund.....	307,921.27	
Post fund.....	46,502.61	
		646,341.54
Total to be accounted for		692,889.72
Expenditures:		
General fund.....	287,586.22	
Pension fund.....	319,398.25	
Post fund.....	46,543.25	
		653,527.72
On hand August 20, 1898		39,362.00

which was all on deposit in bank, except \$1,182.10.

The receipts during the past fiscal year on account of this fund were \$271,353.40, and the expenditures \$264,430.55, which is about \$111.43 per member of the average present.

Under the head of subsistence for the last fiscal year there were two vouchers amounting to \$935.90, outstanding and unpaid for want of the necessary funds from the general treasurer. The failure to send the amount to meet these bills does not seem to be due to a lack of funds, as only \$126,100 of the \$129,000 appropriated for that object was sent to the Branch treasurer, leaving \$2,900 in the hands of the general treasurer, against which was a charge of \$675.19 for articles received from the general depot. Under the system of prorating the disbursements for depot purchases, without reference to the cost of the goods actually sent to each Branch Home, possibly a much larger sum may have been charged than the item referred to, and a deficiency thus created by diverting the funds appropriated for one Branch to the use of another. It would seem to be in the interests of the Home to see that its accounts with dealers are promptly met and not unreasonably delayed.

The receipts from posthumous sources during the year were \$7,035.78 and the disbursements \$4,321.98.

The number of employees authorized under the general fund, including officers and civilians, is reported as 892, but the number actually employed averaged 405, or about 17 per cent of the average present. The compensation paid them was about 28 per cent of the disbursements, and averaged \$181.49 per employee. An average of 71 men per day worked without pay, not as a penalty.

These are mostly made under contract. The reports show but 64, involving \$406.08, made in open market. The principal articles of food supply for the last quarter of the year were nearly all bought in Milwaukee, except fresh beef, in Chicago, salt pork, in Cudahy, Wis., and potatoes, in Sheridan, Wis. The price of fresh beef and of tea was generally lower than at the other Branches, and that of sugar higher.

At the close of the year there
 Pension fund. on the rolls, which was about 87
 bership. Of these 1,993 were
 Their pensions ranged from \$6 to \$45 per m
 concerning this fund during the year was as fol

On hand June 30, 1897.....
 Received during year

Total to be accounted for.....
 Paid to pensioners during year.....

Balance June 30, 1898.....

which was due to 233 pensioners in sums rang
 to over \$500.

The principal revenues accru
 Post fund. derived from sales at the Home
 which amounted to \$42,128.14 du
 beer hall 61,582½ gallons of beer were sold dur
 of over \$15,000, showing a consumption of abo
 man per day. This fund is disbursed in the i
 for amusements, improvements, salaries, and ot
 employment to about 71 men, or about 3 per ce
 bership. The average compensation paid the
 than that of the employees under the gene
 improvements effected wholly or partly from
 mentioned the home store, beer hall, memoris
 social hall, greenhouse, pavilion, and band qua

SUPPLY DEPARTMENTS.

The dormitories seem well filled
 Barracks. the lowest floor space per man (C
 average floor space per man, as
 dow space, is also lower than at most Branches
 sleeping in basements and 62 in attics. The co
 pital building, which had been used as shops,
 prove a desirable improvement. The barracks
 but have no special system of ventilation, whi
 and windows. They are also provided with ba
 averaging one bath tub for every 60, one hopp
 urinal for every 40 men.

Supplies and stores on hand
 Supplies. and properly cared for, and the
 reported ample. The invoice val
 during the year was \$23,403.44 from the genera
 purchase, and \$1,545.78 by transfer. Return
 higher authority are not made, except in the ca
 the general depot made quarterly to the pre
 Managers. Inventories, however, are taken at
 and property belonging to the Home are not al
 as public property, and the quartermaster has
 from all having property continuously in their po

The clothing, it seems, could be improved wi
 issued. The quartermaster reported that 75 pe
 during July by the tailor was shortening the leg
 to the members. This was due to the fact that
 to the Branches do not seem to contemplate t
 men grow older, they may increase in girth &

increase in the length of their legs. A size between the No. 6 and No. 7, as issued, would be found advantageous and of some economy. It might also be an improvement if the system adopted for the issue of clothing to members could be simplified.

At this Branch, it is stated, that an average of eighty separate requisitions are made each month, and each requisition is signed by the captain of the company to which the member is assigned and then by the quartermaster and approved by the governor. It would seem as if the clothing requisition for each company could be made on a properly prepared roll, and thus reduce to some extent the paper work which is so much in evidence in these Branch Homes. And another source of this paper work is due to the transfers of clothing from one Branch to another with members. This should be avoided as far as possible, as at the Eastern Branch, as it involves much labor in making out receipts and internal vouchers. Much of the labor incident to the keeping of the members' clothing accounts, issue, transfer, etc., might possibly be avoided and greater accuracy obtained, as well as impress the member with his responsibility for clothing issued to him, if each member, on his admission, were furnished with a clothing book, in which would be entered, under proper date, all issues to him and all articles turned in. This book to be in the custody of his company commander and follow him when transferred to another company, to the hospital, or to another Branch.

The following is a statement of the clothing accountability for the year:

On hand July 1, 1897.....	\$11,577.63
Received from depot	20,374.48
	<hr/>
To be accounted for.....	31,952.11
Issued during the year	24,743.01
	<hr/>
On hand June 30, 1898.....	7,209.10
Reported on hand.....	6,073.14
	<hr/>
Difference	1,135.96

which is accounted for by the difference in the invoice value of articles.

The clothing issued during the year was reported according to the invoice value of the last issue, which was less than former invoices, and the difference of \$1,135.96 seems to represent a depreciation in the cost of the clothing.

The bedsteads are only 2½ feet in width, which seems narrow for heavy men; but the men here are given 4 blankets. The mattresses are cotton and reported to weigh 13 pounds.

Unserviceable clothing, sold as rags, brought from 1½ to 10 cents per pound, the total amounting to \$1,546.52.

The following is the bill of fare furnished for the week ending June 25, 1898.

Food.

Sunday.—Breakfast: Fried bacon, boiled eggs, bread, butter, coffee. Dinner: Roast beef, gravy, mashed potatoes, horse-radish, macaroni, cheese, apple pie, bread, coffee. Supper: Cheese, crackers, bread, butter, tea.

Monday.—Breakfast: Rolled oats and milk, bread, butter, coffee. Dinner: Boiled shoulders, boiled spinach, catsup, potatoes, pickles, bread, coffee. Supper: Head-cheese, catsup, bread, butter, tea.

Tuesday.—Breakfast: Meat hash, bread, butter, coffee. Dinner: Barley soup, boiled beef, pickles, bread pudding and sauce, crackers, bread, coffee. Supper: Milk, crackers, bread, butter, coffee.

Wednesday.—Breakfast: Corn mush and milk, bread, butter, coffee. Dinner: Stewed beef, gravy, potatoes, lima beans, horse-radish, bread, coffee. Supper: Stewed peaches, biscuits, bread, butter, tea.

Thursday.—Breakfast: Boiled ham, potatoes, bread, butter, coffee. Dinner: Boiled shoulders, boiled spinach, catsup, potatoes, bread, coffee. Supper: Boiled rice and milk, sirup, bread, butter, tea.

Friday.—Breakfast: Boiled beef, boiled eggs, cake, bread, butter, coffee. Dinner: Pea soup, boiled beef, boiled mackerel, potatoes, horse-radish, crackers, bread, coffee. Supper: Rhubarb sauce, gingerbread, bread, butter, tea.

Saturday.—Breakfast: Meat hash, bread, butter, coffee. Dinner: Mutton stew, lima beans, pickles, crackers, bread, coffee. Supper: Boiled rice and milk, sirup, bread, butter, tea.

It requires about 13 men in the kitchen and 34 in the dining hall and an additional detail of some 53 men as helpers, etc., for the preparation and serving of the food. Kitchen and dining hall were in good condition, and facilities for receiving and taking care of supplies and for cooking and serving meals seemed ample. The reports show that these places are inspected daily by the commissary of subsistence and the officer of the day, and also frequently by the governor and surgeon. There are enough tables to seat about 950 men at one time, and they have to be set twice for each meal.

About half of the swill and garbage is sold at the rate of \$20 per month and the other half used on the farm. None of the members received outdoor relief in subsistence or other allowances.

The system of keeping the shop accounts seemed to have been changed during the year, so that the profits of the past year show a large reduction from the previous one. This is due to the shops not charging the Home such a large percentage on the labor and material furnished by the Home to the shops for the use of the Home. It is suggested that it would be more satisfactory to the officers in charge of these accounts if a standard book, or set of books, in which to keep these accounts were furnished them. If these accounts are worth the labor and time expended on them, they are worth keeping well and accurately, and with a definite purpose clearly set forth. As it is, each officer is left to his own device, and the widely varying results obtained emphasize their inutility for comparative conclusions.

Clothing is sent to the laundry at specified times in charge of authorized men, with duplicate wash lists which are verified by count going and returning, and receipts therefor given by and to the laundry clerk. Each member is allowed to send to the laundry weekly one shirt, one pair drawers, and one pair socks, and other clothing as occasion requires. To do the laundry work required the services of 15 laundrymen and one soap maker and an expenditure of 294,080 pounds of soap. The cost for labor was \$1,416 and for materials \$747.90.

The laundry list indicated about 5 sheets and pillow slips, 3 shirts 3.3 pair of drawers, 1.1 pair of socks, 3.6 roller and 6.9 hand towels per man per month.

This Home has a regular fire engine, which is stationed near the main building and kept ready for use, and its fire-alarm system is connected with the fire department of Milwaukee City. There are also 27 fire hydrants for double line of 2½-inch hose with a constant pressure of 50 pounds per square inch and connected with a fire pump located in the central boiler plant where the pressure can be increased to 120 pounds in less than a minute, supplying 1,000 gallons per minute at this point. The water is obtained from the mains. Another pump in the main building will give an additional stream of 250 gallons per minute, taking the supply of water either from the mains or the reservoir. These pumps are manned by the citizen firemen of the fire department. There are

also standpipes, with hose attached and fire buckets, in all of the buildings, manned by members of the various companies, and fire extinguishers have been distributed for instant use.

Three fires occurred during the year for which the fire department was called out, viz, convalescent company October 19, band quarters October 31; and main building annex December 10. The total loss is reported as \$240.

The chief engineer at the Home has general charge of the machinery, water supply, steam and electric plant, sewerage, etc., and employs about 43 men as engineers, firemen, masons, steam fitters, plumbers, laborers, etc. The steam plant consists of two Babcock & Wilcox water tube and five tubular boilers, and is used for heating all public buildings—over 4,000,000 cubic feet of air—for cooking, supplying hot water, running engines, dynamos, elevators, and pumps, and for all purposes requiring steam. The plant is reported to have cost \$35,000, and its cost of maintenance for the past year was \$17,850, or \$22.31 per horsepower.

The electric-lighting plant consists of 2 Edison dynamos and 1 75 horsepower engine, and cost \$4,400. It provides a current for 4 arc lights and 800 incandescent lights, and was maintained during the year at a cost of \$1,159, or about \$1.44 per light. The plant is supplemented by 1,750 gas burners, fed from the city gas works.

The water supply is reported satisfactory in every respect, water being furnished from the Milwaukee City Waterworks. The sewerage system also is satisfactory.

MEDICAL DEPARTMENT.

The hospital plant consists of 1 three-story central administration building, with kitchen and dining room to the rear, connected by corridors with 3 two-story brick pavilions, constituting wards A, B, C, D, E, F, and G, and convalescent company and restraint ward. It has a capacity of 200 beds for patients in hospital and of 112 beds in quarters for convalescents. Each ward is provided with a porcelain-lined bath tub, and the convalescent company with 2, and there are 2 extra for special baths, with a hot-air sweat bath, an electric bath, and a shower bath. Three tubs are set aside for use of surgeons and extra-duty men. The bathing of patients is regulated by the surgeons. In companies the men are required to bathe at least once a week, and company commanders keep a record and are held responsible. Ventilation is effected by shafts and chimneys, with floor and ceiling openings.

The average daily number of sick during the year was 161 in hospital, 85 in convalescent company, and 70 at sick call. The total number of patients reported treated during the year was 4,410, with an average of forty-seven days to each case. The cost of the hospital ration including extra diet averaged 17.8 cents per man per day. The surgeon reports there were no diseases incident to the climate or location, but grip and erysipelas were mentioned among the contagious or infectious diseases.

There were 72 members showing indications of disordered minds during the year, of whom 10 were considered permanently insane. They are cared for in special wards, under charge of male nurses only. Three are quartered in the hospital basement, 1 with a nervous cough and 2 with bad integumentary eruptions. Their quarters are reported dry and comfortable. Facilities to properly care for the insane are reported inadequate, and a ward seems needed with several isolation

rooms and so situated that the noise and shouting of the demented will not disturb other patients.

The annual insane at the Home averages 15, and none have been sent to an asylum for the past three years. The surgeon believes that it would be better and cheaper to have these patients cared for at the county insane asylum at Wauwatosa, which is only 3 miles from the Home and easily reached by carriage.

Twenty-five members were reported totally blind and 21 with an impaired eyesight so as to be unable to read. Two members are employed to read to them daily.

There were 152 deaths during the year, of which 17 died absent on furlough and 135 at the Home; of the latter, 5 committed suicide and 3 died from the results of accidents. The death rate was about 54.3 per 1,000 of the average present and absent, which is somewhat higher than reported at most of the other Branches. About 72.4 per cent. of the members who died were buried at the Home cemetery, at a cost of \$12.30 per man, which is less than at most other Homes.

The hospital employees of all kinds averaged 104, of whom 18 were civilians, giving about one employee for every three patients.

The records of the convalescent company are kept in the hospital, so when men are transferred from the hospital to that company he is dropped from the hospital records and taken up on the convalescent record, and so from one to the other a new record each time, though he is still under the same officer. It was reported that a man's name was entered nine times when admitted to the hospital and seven times when he died.

No record is kept of drugs after they reach the dispensary. Such a record would be possible, as at some of the Homes, if prescription blanks were constantly used, filed in book form and then tabulated. The office files at the hospital were not kept as well as those in the adjutant's office.

NO. 3.—REPORT OF AN INSPECTION OF THE MARION BRANCH, MADE AUGUST 28 TO AUGUST 31, 1898.

This Home is situated on the Mississinnewa River, a few miles from Marion, in the gas region of Indiana, and covers about 300 acres; and in addition 120 acres are leased by the Board of Managers so long as gas is found in paying quantities, for which an annual rental of \$300 is paid. The buildings are mostly brick, economically and well designed, and in very good condition throughout. Grounds also were in excellent order. The principal officers are a governor, treasurer, and surgeon, who seem efficient and thorough in their duties. There is no quartermaster or commissary of subsistence, though the membership is larger here than at the Pacific Branch, where there is one. The general condition of the Home reflects credit upon the administration and management.

There was added to the Home during the past year a new barn, lodge, and gateway and electric plant, at a cost of \$19,262.99, and a chapel and new gas well and connections have been authorized for the present fiscal year, at a cost of \$11,775. The needs reported for the next fiscal year are a building for the electric-light plant, a greenhouse, nurses' quarters, surgeon's quarters, carpenter and paint shop, and a steam pump, for which an estimate of \$14,450 has been made.

The average number of officers and members present during the year was 1,717. The greatest number present was 1,897 on February 22, 1898, and the lowest 1,486 on June 8, 1898, showing a fluctuation in the average attendance of 411.

Population.

which is generally greater than at the other Branches. The absentees averaged 488 per day, the greatest number absent being 704 on June 10, 1898, and the lowest 378 on February 15, 1898. None of the members of this Branch were reported absent over one year.

The total number cared for during the year is reported as 2,817, and the average age of the members as 59.94, which is the lowest average age reported from any of the Branches.

At date of inspection there were present 1,638 officers and members, and absent 638 members, showing 2,276 on the rolls, exclusive of 27 temporary members. There were then 200 vacant beds, which is far more than found at any of the other Branches.

On August 31, 1898, a review of the members was held, about half of the members present being seen in line. The ceremony was well performed, and the men looked contented and well taken care of.

Discipline. Discipline seems well maintained. The principal offenses are fence jumping, intemperance and disorderly conduct, and absence without leave; and the penalties attached are confinement to the limits of the camp or light room, or labor without pay for ten to forty-five days, or both, depending mainly upon the character of the offender and nature of the offense. The system of passes is liberal, and members are frequently excused for absence without leave when good reasons can be given. This is the only Branch Home (not considering the Danville Branch, which had not yet been opened at date of inspection) at which alcoholic stimulants or beverages are not sold to the members. The reports show that 92 per cent of the average present were not punished during the year; and the offenders' docket compares very favorably with that at other Branches.

Amusements. Among the amusements mentioned are theater, concerts, library, billiard hall and club room.

Theatrical performances, indoor concerts, lectures, etc., are given in Stinson Memorial Hall, which has a capacity of 500 and was in excellent condition. There were eleven performances during the year. Of these, ten were free, and one was a paid performance, for which an admission fee of 5 and 10 cents for members and of 50 cents for others was charged. As these receipts were turned over to the company for their services, no expenses were incurred by the Home for the performance. The amusement committee, under direction of the governor, has charge of theatrical entertainments.

The band was maintained during the entire year, with an average of 22 musicians, of whom 20 were civilians and 2 members of the Home. At date of inspection it consisted of 21 musicians, all civilians. It gave 220 concerts during the year, of which 88 were given indoors, all reported well attended. The programmes comprise classical and popular music and national airs. There are no charges of admission to concerts. The cost of the band, including subsistence and other allowances of civilians, was \$8,342.13 during the year, and is met from the post fund.

The library, which is located over the new dining hall, was in good condition and contained at date of inspection 3,341 volumes. Books can only be taken from the library by actual members of the Home. The circulation during the year was over 32,000, giving an average of nearly 19 books per member, which is more than reported by any of the other Branch Homes. Fiction and history seem to be in greatest demand. The Protestant chaplain of the Home acts as librarian.

The billiard and card rooms are also over the dining hall, and the tables are constantly in use during the hours allowed for play. Check-

ers, chess, and dominoes are also played. Facilities for these indoor games are reported ample. The only out-of-door game reported is quoits.

There are several societies among the members, with a total membership of 937, and their effect upon discipline is said to be excellent.

These are held twice a week by each denomination in Religious services. Stinson Memorial Hall, which is not considered suitable for the purpose. Divine services are reported fairly well attended. None of the chaplains live on the Home grounds.

There were 124 acres under cultivation during the year, which produced \$4,715.07 worth of vegetables and forage, the principal items being cabbage, horse-radish, onions, peas, radishes, rhubarb, tomatoes, oats, and straw. The cost of maintaining the farm proper is reported as \$3,106.23. The buildings pertaining to the farm—barn, carriage-house, and hay shed—are mostly old and in bad condition, and were on the land when the Home was organized. A new barn is now being erected, and when completed and accepted by the Home officials it is contemplated to tear down the old buildings. The transportation consists of twelve vehicles of all kinds, and twelve public animals. Cows are not kept.

DISBURSEMENTS.

The accounts and disbursements of the treasurer were examined from September 17, 1897, the date of last inspection, to August 29, 1898, and involved \$488,889.27 pertaining to the general, pension, and post funds. The transactions concerning these funds may be briefly stated as follows:

On hand September 17, 1897:

General fund.....	\$11,351.84	
Pension fund.....	3,099.56	
Post fund.....	2,227.22	
		16,678.62

Received since:

General fund.....	193,430.11	
Pension fund.....	248,970.92	
Post fund.....	29,809.62	
		472,219.65

Total to be accounted for..... 488,889.27

Expenditures:

General fund.....	172,286.81	
Pension fund.....	245,256.79	
Post fund.....	29,737.74	
		447,281.34

On hand August 29, 1898 41,607.93
Which was all on deposit in bank except \$111.41.

The depository for this Branch is in Indianapolis, Ind., some 68 miles distant, compelling the treasurer to make his remittances through a local bank, not an authorized depository, at Marion, Ind., and subjecting the Home to the cost of express transportation for currency and specie required for pension and pay rolls. At the other Branch Homes the depository is in the adjoining city.

The receipts during the year ending June 30, 1898, General fund. on account of this fund were \$177,613.64, and the expenditures \$160,371.93, which is about \$93.40 per member of the average present.

The cashbook and vouchers as presented were in proper form, according to prescribed methods, and showed care and diligence in their keeping. Checks for payment of vouchers were drawn by the treasurer and held until the return of vouchers properly signed. This

would seem to be an improvement on the practice of sending the check out with the unreceipted voucher and awaiting the pleasure of the creditor to return the voucher signed. But why not wait for the return of the voucher before drawing the check? There does not seem to be any compensating advantages in the keeping of a signed check on hand.

The receipts on posthumous accounts were \$2,363.85, and the disbursements \$960.25.

The employees authorized under the general fund were 3 officers, 252 members, and 67 civilians, which is about 1 employee to 5 members of the average present. The compensation paid them averaged per day \$6.59 for officers, \$1.03 for noncommissioned officers, \$0.54 for members, and \$2.70 for civilians; and aggregated for the year \$60,753.04, or slightly over three-eighths of the disbursements.

The pay rolls for July could not be promptly paid, much to the discomfort of the civilian and other employees, who are obliged to depend more or less upon their monthly salary for the necessities of life. This condition, it was alleged, was due to the failure to receive from the general treasurer sufficient funds under the appropriations needed, while funds were sent for which there was no immediate need.

The reports show that 902 purchases, aggregating \$7,786.72, were made in open market, and all other purchases were made under contract. A comparison of contract prices prevailing for the last quarter of the year shows that this Branch paid slightly more for coffee, bacon, sirup, and granulated sugar than most of the others, and less for tea, potatoes, beans, and butter. It paid 1½ cents per pound less for codfish than the Eastern Branch, though both obtained their supply of codfish from Gloucester, Mass., and the Eastern Branch bought in greater quantity.

On June 30, 1898, about 87 per cent of the membership, or 1,896 members, were on the pension roll, of whom 1,250 were present. Their pensions ranged from \$6 to \$30 per month. The following is a summary of the transaction of this fund for the year:

Balance June 30, 1897	\$1,491.63
Received during year	246,178.34
Total to be accounted for	247,669.97
Paid to pensioners	245,466.11
Balance July 1, 1898	2,203.86

which stood to the credit of 36 pensioners. The same liberal policy in paying to the members their pension money noted at the Eastern Branch was observed here.

This Home has no beer hall, and relies almost entirely upon the profits at the Home store for its post fund.

The cost of the band is met from this fund. The following is a summary of the transactions of this fund reported for the year:

Cash on hand June 30, 1897	\$1,858.24
Receipts :	
Sales, Home store	\$24,391.17
Transportation	7,560.00
Amusements	213.29
Other sources	3.00
	<hr/>
	32,167.46
To be accounted for	34,025.70
WAB 98—72	

Expenditures :

Stock for store.....	.....
Transportation .....	.....
Amusements .....	.....
Insurance.....	.....
Clerks and other purposes .....	.....

Cash on hand June 30, 1898.....

The net profits for the year were reported :

This Home has the smallest post fund, per of beer, but the sales at the Home store are other Branches, and are almost as large as th and beer hall of the Pacific Branch.

The average number of employees under th past year, which is about 2.2 per cent of the the year.

The vouchers for the post fund for the qua were absent, as at the Branches previous incomplete inspection could be made of that a

The transportation lines throughout the co half rate for carrying of all members of the l travel at their own expense. When this con the several Branch treasurers sold to the mer upon, transportation orders serially numbered by the officer issuing them. These orders, proper ticket office, were taken up by the age portation between the points named issued th was required for each railroad or steamship subsequently sent by the transportation comp from which they were issued, with the rec which was made upon duly receipted vouch number of members leaving the Homes on "pension day," the issuing of these request account grew to large proportions, and it was that steps be taken to have the transporta direct to the members upon a proper certifica by the Home, and thus save to the company a of accounts and accounting.

At some of the Branch Homes the officers induce some of the railroad and steamboat c certificates, thus mutually lightening their la Western Branches all the railroads sell ticket bers direct. At some of the Branches the ac transportation, including the sale of the orde of members of the Home, and, as was pointe under insufficient safeguard; but confidence to be sufficient. That this confidence may be onstrated at this Branch, where the clerk in cl able not only to embezzle the funds but also own use. Would it not be possible by those i perfect a method that would be acceptable t panies for the sale of tickets direct to the me sold to members of other organizations at upon?

SUPPLY DEPARTMENT.

There is neither a quartermaster nor a commissary of subsistence at this Branch, and the duties usually pertaining to these officers are performed by the treasurer.

Barracks. There are 12 barracks at this Branch, each two stories in height, with basement and attic and slate roof. These quarters seem less crowded and better ventilated than at other Branch Homes, and urinal and toilet facilities seem to be greater. The basements are used as storerooms and shops, and one as a mess room for clerks. The attics are used for sleeping purposes, being occupied at date of inspection by 125 men, and as baggage rooms. Six of the barracks are heated by open fireplaces and six by hot-air furnaces and open fireplaces, and all are lighted by natural gas—which, however, will be gradually superseded by electric lights now being installed.

Beds, bedding, and lockers seemed in good condition. The mattresses for both barrack and hospital use are made of cotton, but the latter is the heavier by about 9 pounds. All bedding is aired at least once a week, and cots and mattresses examined as to vermin and condition, and general house cleaning occurs twice each year. The lockers in use are constructed of yellow poplar, about 2 feet wide, 14 inches deep, and 3 feet high over all, with a panel door extending to a height of $2\frac{1}{2}$ feet, and a lid sloping back, with a small door opening out from the top and forming, when open, a writing desk and bookcase combined.

Supplies. The supplies and stores on hand seemed of good quality, but the storage facilities are reported inadequate, and basements have to be used for that purpose. No loss or deterioration, however, occurred on account of storage, and supplies appeared to be well taken care of.

Clothing, when received, is entered on the property ledger, and issued on properly made and approved requisitions, and charged in the clothing ledger to the member to whom issued; secondhand clothing is issued on requisition or order, and record made of same. New clothing is not issued unless the old clothing is sufficiently worn out and unfit for further service. Members on furlough do not receive any clothing, and when they have been absent one year, their clothing left at the Home, with the exception of greatcoat and dress coat (if the term of using same have not expired), if found fit for reissue, is taken up on the ledger and the rest placed on the secondhand shelf for issue or condemnation, according to condition.

The supply of clothing on hand seemed sufficient, except as to shoes, of which there were no Nos. 6, 7, or 8 on hand. A requisition made July 1 had not been filled. In the total accountability for clothing on June 30, 1898, the secondhand clothing did not seem to be accounted for.

While the accounts at the quartermaster's office were apparently correct, the data upon which the entries were made did not seem to justify them. An effort was seemingly made about the close of the fiscal year to bring the balances shown by the books into closer accord with the actual balances on hand. This was noted more especially with regard to forage, and may have been due, as stated, to lack at the barn where forage is kept and issued of proper facilities for weighing it in and out. There was also some confusion noted between the quartermaster's account of issues and hospital account of drugs received.

In the keeping of the shop accounts 10 per cent profit was charged for all material expended and services rendered, except at the shoe shop,

where the shop was credited with 40 cents per pieceable property is eliminated from the service of the inspector-general of the Home, and destroyed. The most important sales are those of rags, and there is a stamp for all kinds of rags. The receipts from the sale of rags during the year.

The property of the Home is not all marked as public property.

The following is the bill of fare for the year ending June 25, 1898:

Food.

Sunday.—Breakfast: Fried ham or fried bacon or bread, butter, and coffee. Dinner: Roast mutton or beef, mashed potatoes, pickles, pie, bread, butter, and cheese, cookies, bread, butter, and tea.

Monday.—Breakfast: S. C. shoulder, baked potato. Dinner: S. P. shoulder, baked navy beans, baked bread, butter, and coffee. Supper: Apple sauce, corn sirup, bread, butter, and tea.

Tuesday.—Breakfast: Corned beef hash, bread, butter, and soup, beef with gravy, pickles, crackers, bread. Dinner: Ginger cake or hominy, stewed peaches or currants, and coffee.

Wednesday.—Breakfast: Beef fricassee, fried potato. Dinner: Roast beef with gravy, mashed potatoes, bread, butter, and coffee. Supper: Apple or peach sauce, bread, butter, and coffee.

Thursday.—Breakfast: Boiled ham or Irish stew, potatoes, bread, butter, and coffee. Dinner: S. C. or S. P. shoulder, stewed navy beans, pickles, bread, butter, and coffee. Supper: Stewed apples, bread, butter, and tea.

Friday.—Breakfast: Mackerel or fried bacon, potatoes, bread, butter, and coffee. Dinner: Fried fish or codfish cake with egg sauce, potatoes, bread, butter, and coffee. Supper: Cold corned beef, beans, bread, butter, and tea.

Saturday.—Breakfast: Corned beef hash, bread, butter, and coffee. Dinner: S. C. or S. P. shoulder, stewed navy or lima beans, potatoes, bread, butter, and coffee. Supper: Fresh or stewed fruit, rice with raisins, sirup, and coffee.

A standard bill of fare is made up once a week as the opportunity may present or require.

To prepare and serve the food there are per kitchen about 24, and in the dining hall 14, an average temporary detail of 84 men. The men were in good condition, and are inspected monthly at least once a week by the governor. The cost is 1,072, and tables are set twice for each meal for extra-duty men. Facilities are reported ample for care of supplies and for cooking and serving. The men were given during the year to transients not at the Home, mostly relatives of deceased soldiers, the funerals, or disabled soldiers not entitled to the Home.

The breakage of crockery during the year was 100 pieces, and for pepper bottles to 58 per cent for butter reported as due to their not nesting properly.

The reports show 28 men receiving out of pocket \$5.20 per man per month; of these 12 are civilian employees. There are also 25 communicable bandmen, to whom rations in kind, at 20 cents per man per month.

Swill and garbage were not sold or utilized, but given away for the hauling.

Laundry. All soiled underclothing is sent to the laundry, and certain days are set for the laundry from each company and the amount as to how much each man is to have.

The amount of laundry is not fixed as to how much each man is to have, but is determined by the laundry.

underwear is received at the laundry in lieu of Home articles. The following is the average number of pieces of clothing reported laundered per month:

Blouses	7	Vests	4
Trousers	60	Shirts, white	811
Shirts, knit woolen	3, 731	Shirts, red flannel	13
Drawers, cotton	4, 647	Drawers, red flannel	11
Socks	1, 423	Overalls	124

This gives for an average present of 1,717 members about 2.7 shirts and drawers, and less than one pair of socks per man per month.

There were 20 men employed in the laundry during the year, and 57,950 pounds of soft and 5,040 pounds of chip soap used, and the expenses were \$2,865 for labor and \$428.71 for material.

Protection against fire consists of a steel standpipe, 18 feet in diameter and 125 feet high, holding 238,000 gallons of water, which is kept full at all times, and gives a sufficient pressure to throw water over the highest buildings. The fire organization consists of a volunteer company of 16 members, who meet every Saturday. The large hose is tested every thirty days and the small hose every ninety days, and in addition, a certain portion of the hose is tested on Saturday afternoon of each week. The apparatus was reported adequate and in good condition. There were no fires during the year.

There is no central steam plant at this Branch, and all buildings are heated by natural gas, open fireplaces, furnaces, and stoves. The following are the steam boilers in use: Two horizontal tubular boilers at pump station of 50 horsepower each, two horizontal tubular boilers at laundry of 60 horsepower each, two horizontal tubular boilers under dining hall of 60 horsepower each, one horizontal tubular boiler at hospital of 35 horsepower, one upright boiler at garden pump of 15 horsepower, and one Gorton upright boiler in each of the twelve barracks; those of barracks Nos. 1 to 6 being of about 2 horsepower each, of Nos. 8 and 9 of 3 horsepower each, and of the other four barracks of about 4 horsepower each. They are all high-pressure boilers, and required the services of 14 men to run them, and an expenditure of \$1,655.53 for salaries, repairs, and inspection, or an average of \$3.94 per horsepower, or of \$0.97 per member of those present.

The water supply is pumped from seven gravel wells, 87 feet deep, and from one well 345 feet deep, and distributed by standpipe pressure. It is reported satisfactory, except that one old pump should be replaced by a new one.

Sewage is carried off through a 10-inch vitrified pipe to the Mississinnewa River, a distance of 4,000 feet, and is reported in good condition. Drainage could be improved by a 24-inch tile drain to carry the surface water from low places back of the officers' quarters to the river.

There is no cold-storage or ice plant, and the installation of the electric-light plant, for which provision has been made, had not yet been completed at date of inspection.

MEDICAL DEPARTMENT.

The hospital is composed of a central administration building, with a north and south wing, and a building to the rear constituting the dining room and kitchen. It has a capacity of 215 beds for patients. The

convalescents are quartered in the two lower wards and 8, which have a capacity of 90 beds.

The average daily number of sick during the year, 78 in convalescent companies, 2 in the hospital; and the total number of patients treated during the year, 1,000. The principal acute diseases the principal ones were malaria, pneumonia; and among the chronic diseases, rheumatism, disease, bronchitis, and tuberculosis. There were 10 cases of erysipelas.

Patients are given a bath as soon as admitted to the hospital, and weekly thereafter, unless exempted by the surgeon. Their beds receive a sponge bath once a week. There is one bath tub to each patient in the hospital. The average ration, including extra diet, averaged 14.82 cents per day. The total paid for extra diet amounting to \$1,052.50.

Insane members are cared for at the hospital, requiring constant surveillance being placed in wire screens on the windows. The more violent members are kept in the guardhouse until they can be transferred to the Government Hospital for the Insane. Padded cells would be used for this class of patients. There were 23 members of the hospital with disordered minds during the year, of whom 3 were newly insane and sent to the Government Hospital.

Nine members were reported totally blind during the year, rendering them unable to read; and a committee was appointed to give assistance, as in keeping their clothing clean and their food, etc. One man is employed to read to the members.

There were 92 deaths among the members during the year. 14 died outside of the reservation, giving a mortality of 1.4 per 1,000 of the average present and absent, or 1.4 per 1,000 for the entire Home. The average age at death was 45 years. Sixty-six members were buried at the reservation, at a cost of \$9.64 per funeral, which is generally less than at the Branches, but the cost of the coffin is higher. The total cost for the funeral expenses of members dying out of the reservation was \$611.84.

The hospital employees of all kinds average 100 during the year, which gives about one employee for every 10 members.

The amount expended for medicines during the year was \$5,451.73, which is more than at some of the other Branches. Those most used during the year were alcohol, opium, opiate, purgatives, potassium, iodide, bromide, and strychnine.

The surgeon makes a monthly inspection of the hospital, and reports thereon to the governor. The surgeon also makes a monthly inspection of the grounds, regarding their sanitary and hygienic condition, and reports thereon to the governor.

NO. 4.—REPORT OF AN INSPECTION OF THE HOME MADE AUGUST 26 TO SEPTEMBER 1, 1890

This Branch Home contains 578 acres in its area, which exceeds by several Branches in area, is by far the most beautiful situated on a commanding site overlooking Dayton, and the grounds are well kept and attractively landscaped. The fine landscape gardening, especially the decorations at the principal entrance, artificial lakes, and the architecture are prominent features of this Home. Its principal officers are a principal, a quartermaster, a commissary, an assistant adjutant-general, an inspector, and a chaplain, all of whom are thoroughly familiar with their duties, and efficient in the discharge of the same.

A new hospital out-ward has been built during the year at a cost of \$5,243.92, and wings have been added to three frame barracks. But these additions seem hardly sufficient to give the room needed. At date of inspection there were no vacant beds in barracks, and but 15 in the hospital, though 996 members were absent from the camp, mostly by permission. A new brick barrack, to cost \$25,000, and a brick water-closet, to cost \$3,300, have been authorized for the present fiscal year, and another brick barrack and enlargement of the electric-light plant and of the laundry building have been estimated for at a total cost of \$43,493.70.

A handsome new conservatory was nearly completed at a cost of \$10,000, paid from the post fund, but a noticeable lack of sidewalks was noted, compelling the members to walk on the graveled roadways. As this exercise in good weather is one to be enjoyed by all, would it not be well to make it attractive and pleasant, as at the Marion and Southern Branches?

The average number of officers and members present during the year was 4,972. The greatest number present was 5,108 on December 8, 1897, and the lowest 4,728 on April 15, 1898, showing a fluctuation in the average attendance of 380. The absentees averaged 934, the greatest number absent at one time being 1,187 and the lowest 766. On June 30, 1898, there were 414 men reported absent, whose terms of absence ranged from one to over ten years.

The total number cared for during the year was 7,092, and the average age of the members was reported as 63.7 years.

At date of inspection there were present 5,027 officers and members and 996 absent, showing a total of 6,023 on the rolls of this Branch, exclusive of 24 temporary members.

On September 4, 1898, a review of the members was held, nearly half of those present being seen in line. The ceremony was well performed and the men presented a good appearance.

Discipline seems to be fairly well maintained. The principal offenses are intemperance and absence without leave, including fence jumping, and the penalties attached are work without pay and restriction of passes. Fines are not imposed. At date of inspection there were 4 members in confinement in the guardhouse. The reports show that the greatest number of men drunk on one day was but 13, which is less than 1 man in every 300, and that 68 per cent of the average present have not been punished. Passes are conditioned on good behavior, and three kinds are in use: First, the card pass, on which members go and come at will between 6 a. m. and 6 p. m.; second, transportation pass, not to exceed nine days, used by members going beyond Dayton, and, third, the ordinary pass, good for a day or more, used when transportation is not required. It is reported that the various societies existing among the members are not aids to discipline.

In the adjutant's office the records were well kept and indexed. In the offenders' docket are entered only the names of those upon whom sentence has been imposed, and not the number of those arrested.

These include theatrical performances, band concerts, a library and current literature, a veterans' clubhouse, with billiards and kindred games, shovelboards, chess, cards and other games, boats, quoits, and a deer park. Two additional shovelboards and two hydrocycles were added during the year.

The theater has a seating capacity of 1,500 and its entertainments are under the charge of the am There were 45 performances given at an expense of printing of programmes, which amounted to \$1 from the sale of seats during the year were \$2,140 1898, members have been admitted free of charge, ian employees pay 15 and 25 cents and outsiders 2 building used as a theater is known as Memorial E condition.

The band was maintained during the entire year 34 musicians, of whom 30 were civilians. It g which 69 were indoors, all reported well attended. for admission to the concerts. The cost of mainta ing the year was \$11,651.82. The first floor of reserved for the use of the civilian musicians, a same allowance of clothing, fuel, and rations as me with the exception of greatcoat, dress coat, and rations and clothing are paid for from the post fun

The fine open-air concerts given by the band the campus were well attended by the member of benches, very many were obliged to sit on th side, with their feet in the gutter, as the most comf them, willing to take the chances of rheumatis ments. A liberal outlay for benches and sidewal appreciated by the members as much as a new con

The library is a fine three-story brick and was in contained at date of inspection 21,485 volumes an papers and periodicals, which are partly subscribe nished free. Books taken from the library must two weeks and can not be taken from the Home. were taken from the library during the year, or an per member. Fiction and history seem to be in gi

The veterans' clubhouse is a fine two-story and was especially built to meet the wants of the mem for meetings, a reading room, a billiard room, car the basement are shovelboards, bagatelle, and othe no charges for games, and the various tables are use when the rooms are open. At times the fa inadequate.

The boats at the Home include two hydrocycles free of charge by the members.

There are two chapels at this Bra Religious services. of Protestants and the other, of rec the use of Roman Catholics. The Home reside on the reservation. The Roman Cat services daily and the Protestant six times per w frequent visits to the members in the quarters as pital. Services are reported well attended.

The farm comprises 285 acres an ings, which were generally in fairly farm hands number about 17, and in the vegetable garden, 16 in teaming, and 39 i and on the lawn. The transportation consists kinds and 26 public animals. There is also a he farm stock on hand June 30, 1898, was valued horses kept on the farm not entitled to forage are

rate of 25 cents each per day for their keeping, exclusive of care of horse. Animals no longer needed on the farm are condemned and sold.

The value of the farm products during the year was:

Vegetables, chickens, and eggs for table	\$2,822.56
Milk (18,643 gallons).....	1,864.30
Fodder, hay, etc., fed to stock	1,607.95
Animals, grain, etc., sold	1,660.56
Total	<u>7,955.37</u>

The cost of maintaining the farm proper is reported as \$4,641.98.

The vegetable garden does not seem to be a profitable undertaking, and might be abandoned with advantage. The average amount of garden vegetables raised at these Homes, while they may be appreciated in the hospital and other messes, do not seem to be of much service to the general mess, and their continuance as a source of possible benefit to the Home is a matter that might be taken under advisement.

Among the items of products sold were flowers to the value of \$322.35, which might have served a useful purpose on a table in the sick room. We have in very many of our cities "flower missions," whose kindly work it is to supply the public hospitals, as far as possible, with flowers, and thus bring to those sufferers who are debarred from it something of the life and beauty of the outside world; and should not this be one of the principal aims of the culture of flowers at these Homes? Then there would be no surplus for sale to outsiders, but a place would be found for all.

DISBURSEMENTS.

The accounts and disbursements of the treasurer were examined from September 25, 1897, the date of last inspection, to August 31, 1898, and involved \$1,403,540.21, pertaining to the general, pension, and post funds and to the fund for an additional chapel. The transactions concerning these funds may be briefly stated as follows:

On hand September 25, 1897:	
General fund.....	\$65,060.13
Pension fund.....	87,379.05
Post fund.....	19,216.85
Chapel fund	6,088.32
	<u>\$177,744.35</u>
Received since:	
General fund.....	511,844.01
Pension fund.....	577,477.55
Post fund.....	136,474.30
	<u>1,225,795.86</u>
Total to be accounted for	1,403,540.21
Expenditures:	
General fund	523,362.67
Pension fund.....	594,618.80
Post fund.....	133,021.67
Chapel fund	6,088.32
	<u>1,257,091.46</u>
On hand August 31, 1898	146,448.75
All of which, except \$221.04, was deposited in bank.	

The accounts and records inspected were found accurately and correctly kept, except as to the monthly list of paid checks from the National Bank of Commerce, where a portion of the pension account is kept. On this list the checks were reported in order of payment,

instead of the serial number of the check, as of all Government depositories.

The receipts during the year
 General fund. account of this fund, were \$541
 tures \$502,589.13, or about \$1
 average present, which was all disbursed by
 posthumous account were \$18,517.80, and the d

The number of employees autl
 Employees. fund, including officers and civ
 while the average employed wa
 per cent of the average present. The comp
 about 31.5 per cent of the disbursements, an
 employee, which is lower than at some of t
 average of 285 members per day worked wit
 penalty. These men are periodically detaile
 kitchen work, gathering vegetables, etc. Al
 subject to these daily details.

The reports show that 170 i
 Purchases. open market, involving \$6,460
 that all purchases of over \$1,
 made under contract, yet many instances were
 ments of this law were not observed, owing t
 contracts approved in time to meet the neces
 these contracts are not complete and operativ
 president of the Board of Managers, could they
 up to that point and held in abeyance awaiting
 making appropriations for the support of the l
 completed and the several Branch treasurers
 telegraph? The great inconvenience and resu
 making purchases for short periods is manifes
 have been desirable to have avoided it.

The principal articles of food bought under
 year were obtained from a number of States, fi
 ward to Missouri or Wisconsin. The prices
 those paid by some of the other Branches. Th
 in the case of bacon and ham obtained from
 obtained from Gloucester, Mass., and oleom
 Kansas City, Mo.

The principal revenues accru
 Post fund. rived from profits of sales at th
 and hotel and restauraut. The n
 were those from the beer hall, which amounte
 sented the gross receipts of the sale of 204,832

The floor of the beer hall appeared to be w
 to suggest that at an early date a new one wo
 flooring would seem to be better adapted tha
 stant washing is required to keep the place cl
 be more conducive to health.

A new application of the post fund was not
 eggs and chickens for special diet in the h
 appropriation for the support of this hospital
 meet its legitimate and necessary expenses, th
 mit for the consideration of Congress an est
 amount deemed necessary to meet the defic
 asked why this post fund should be burdened

officials to enforce a law of the State of Ohio, known as the mile-and-a-half-limit law. A number of vouchers were not submitted for inspection, as they were reported absent for signature with the checks.

The number of employees under the post fund averaged 151, which was about 3 per cent of the members present. Their average compensation is less than reported from the other Branches.

A large amount of transportation is sold at this Branch, but there does not seem to be a sufficient check in the issue of the transportation orders. While at some of the Branch Homes only four time books are used, at this five are used, in each of which the names of all the employees are written once each month. One is kept in the treasurer's office, two in the quartermaster's office, one for each alternate week, and two kept by the foreman of the shops and those in the immediate charge of the employees, one for each alternate day. If the book kept in the treasurer's office were made up in the quartermaster's office from the daily reports and certified at the close of the month to the treasurer by the quartermaster, would not the same end be obtained, and thus save the time and labor expended in keeping the two books now kept by the quartermaster?

At the close of the year there were 5,472 pensioners on the rolls, of whom about 4,507 were then present. Their pensions ranged from \$6 to \$72, nearly one-half receiving \$12 per month. The following is a summary of the transactions concerning this fund for the year:

On hand June 30, 1897	\$92, 746. 73
Received during year	749, 154. 78
Total to be accounted for.....	841, 901. 51
Paid to pensioners.....	757, 793. 24

Due pensioners June 30, 1898..... 84, 108. 27

which about equaled the balances carried by all the other Branch treasurers together, and represented the amount due to 516 pensioners in sums ranging from less than \$100 to over \$1,000.

The balance of the pension fund at date of inspection, August 31, 1898, was \$70,237.80, a reduction of nearly 20 per cent since last inspection, September 25, 1897, with disbursements during that period of nearly \$600,000.

The balance was distributed as follows :

Personal accounts.....	\$62, 474. 81
Premium on bonds	2, 296. 68
Interest on bonds	5, 266. 31
Total	\$70, 237. 80

Of the amount due on personal accounts, \$7,738.78 is due to members in the Government Hospital for the Insane and to others whose present address is not known. Possibly the address of some of the latter, if living, might be obtained from the Pension Office, and, if any are reported as dead, the amount due them carried to the posthumous fund.

SUPPLY DEPARTMENT.

There are 32 barracks at the Home, of which 17 are frame structures. None of the barracks have a basement, but 12 have cellars which are used for the storage of property. Nearly all are occupied by more men than was originally

intended, and 57 members were sleeping on floors. barracks are sadly in need of repair, or should be to with more air space on approved plans. Some of the located in wings and corners of the barracks were in poor sanitary condition, though it is apparent that every effort is made to keep them in a sanitary condition, cleanliness, and paint to keep them in a possible. Only one barrack is provided with bath. The general bath house containing 31 tubs, where the men are to bathe once a week. Each tub averages about 150 gallons, considerably more than reported by the other Branches. The number of men to each hopper and urinal is generally 10.

The barracks are heated by steam and lighted by electricity. The condition of beds, bedding, and blankets is reported good. The mattress is made of cotton and wool and 2 ounces.

Ventilation is effected mostly by doors and windows. It may be considered satisfactory for all seasons of the year. The apartments are crowded.

Supplies and stores on hand seen. but storage facilities are reported inadequate. The supplies of the quartermaster and commissary are stored in cellars and other places. No loss of property has ever occurred on account of poor storage.

The invoice value of property received during the year is as follows:

From general depot	
By purchase	
By transfer	

Property purchased, on arrival at the Branch by the officer appointed by the governor, after which an inventory is made up and the accounts charged accordingly. Property is received to the Branch from the general depot or other branches and receipted for by the quartermaster as per inventory of the goods so received. Issues are made only on receipt bearing the governor's approval. Issues to commissaries are charged in book of issues of imperishable property to responsible officials. Worn-out property is held in inventory until condemned by an inspecting officer of the Navy. Property or destroyed property is acted on by a board of survey. The cost of the property condemned during the year was \$55,287.34, and \$3,682.81 was realized from the sale of the property. The sale of rags brought \$3,155.84, and \$1.00 from 1½ cents for mixed rags to 15 cents for blue. Old hats brought \$11.81 and worn-out shoes \$1.00.

The property accounts of articles relating to food and clothing are satisfactory as it would be possible to keep a record requiring explanation, and the requisitions appear to be correct. It was stated that an increase from an average of 100 pounds of ship stuff to one of 848 pounds was due to a decrease in the dining hall. A saving of 120 pounds of ship stuff is quite an economy, but what can be said of the method of saving possible?

The stock on hand of clothing in the sizes in inventory was very low. The last requisition of July 1 was for 100 pounds of ship stuff.

The following is a summary of the clothing accountability for the year:

On hand July 1, 1897.....		\$22, 101. 00
Received from depot.....	\$47, 314. 05	
Received from other places.....	4, 096. 90	
		51, 410. 95
Total to be accounted for.....		73, 511. 95
Issued during year.....	56, 035. 31	
Transferred to other Branches.....	4, 014. 56	
Difference in price.....	4, 129. 02	
		64, 178. 89
On hand June 30, 1898.....		9, 333. 06

An individual clothing account is kept with all members, and no articles are exchanged before they are worn out, and none are issued to men who go on furlough or while so absent.

Food. The following is the bill of fare furnished for the week ending June 30, 1898:

Friday.—Breakfast: Mackerel, potatoes, bread, oleomargarine, coffee. Dinner: Codfish with egg sauce, tomatoes, mashed potatoes, bread, oleomargarine, coffee. Supper: Stewed peaches, cake, bread, oleomargarine, tea.

Saturday.—Breakfast: Corned-beef hash, bread, oleomargarine, coffee. Dinner: S. P. shoulders, navy beans or cabbage, potatoes, bread, oleomargarine, coffee. Supper: Rice pudding, sirup, biscuits, bread, oleomargarine, cheese, tea.

Sunday.—Breakfast: Cold sliced ham, potatoes, bread, oleomargarine, coffee. Dinner: Mutton stew, apple pie, bread, oleomargarine, coffee. Supper: Raspberries, cookies, bread, oleomargarine, tea.

Monday.—Breakfast: Pork and beans, bread, oleomargarine, coffee. Dinner: Roast beef, vegetable soup, potatoes, pickles, crackers, bread, oleomargarine. Supper: Rice pudding, sirup, biscuits, bread, oleomargarine, cheese, tea.

Tuesday.—Breakfast: Irish stew, bread, oleomargarine, coffee. Dinner: S. P. shoulders, navy beans, potatoes, bread, oleomargarine, coffee. Supper: Stewed apples, ginger cake, bread, oleomargarine, tea.

Wednesday.—Breakfast: Corned-beef hash, bread, oleomargarine, coffee. Dinner: Cold roast beef, cabbage, potatoes, bread, oleomargarine, coffee. Supper: Cold corned beef, pickles, bread, oleomargarine, tea.

Thursday.—Breakfast: Beef fricassee, pearl hominy, bread, oleomargarine, coffee. Dinner: Roast beef, navy beans, potatoes, apple pie, bread, oleomargarine, coffee. Supper: Mush, sirup, biscuits, bread, oleomargarine, cheese, tea.

To prepare and serve the food there are permanently employed in the kitchen about 62, and in the dining hall about 89 men, supplemented by an average temporary detail of 210. There are sufficient tables in the double dining room to seat 2,044 members simultaneously, but it requires two settings of the tables to accommodate all. Both kitchen and dining hall were in good condition, and they are frequently inspected by various officers of the Home. Facilities for receiving and taking care of supplies, and for cooking and serving meals seemed to be ample. The breakage of crockery used on the table, which is said to be due to constant use and accident, ranged from 2 per cent for saltcellars to 89 per cent for deep round plates.

Swill and garbage, amounting to about 177,000 pounds per month, were sold during the year, the receipt from this source being \$4,682.68.

None of the members were reported on outdoor relief.

Soiled clothing is put in bundles in barracks and sent to the laundry each Monday morning. Each member is permitted to send one set of underclothes per week, and

other clothing and bedding when necessary; but private clothing of members is not laundered at the Home under any conditions. To do the laundry work of the Home required the services of 44 men and an expenditure for labor and material of \$5,762.70, which is less than \$1,50

per man per annum and seems very reasonable. the laundry, and instead, a solution containing 10 20 pounds of soda to 150 gallons of water is used, one-third of a cent per gallon. In this way 1 were used.

The wash list indicated about $4\frac{1}{2}$ shirts, 4 pairs pair of socks, $4\frac{1}{2}$ bed sheets, 3 pillow slips, and towels per man per month.

The chief engineer of the Hon
 Engineer depart- heating, lighting, water, and se
 ment. employs a force of about 74 m
 members of the Home.

The steam plant consists of 29 high-pressure steam for heating all buildings and for cooking for shops, pumping station, gas and electric-light cost about \$103,000, and its cost of maintenance about \$65,000, or about \$31 per horsepower. The feet of air space to be heated.

The cost of the electric-light plant is reported gas works as \$40,000, exclusive of the distribut mos furnish a current for 16 arc and 2,227 incand run at an expenditure of about \$4,600 during the \$2 per light. The gas works supplied 5,238 burn \$6,200, which is but little over \$1 per light. Ga and electric lights in the hospital, chapels, t quarters, mess hall, club house and stable. Th by gas.

The cold-storage and ice plant consists of 1 erating and ice-making machine, including Cor acting ammonia compressing pumps; freezing cans, and the necessary machinery for providi making ice. There are 7 cold-storage rooms a feet of air space cooled. Its cost of operation about \$4,600. It has a capacity of making 30 or 50 tons refrigeration. The cost of making ice ton. This plant cost about \$29,000.

The system of water supply and of drainage an satisfactory and in good condition.

The protection against fire cor
 Fire department. ladder truck, and 4 hose reels at th
 reel at the laundry and 1 at the h
 on each barrack floor, and a standpipe with 65 p
 apparatus was reported in good condition. Th
 organization is 72 men, under the chief engineer

A fire, caused by the blowing out of a gas seal 5, 1897, made it necessary to call out the fire dep; extinguished without loss. No other fires occu The following are the rules and regulations for the

Hereafter the Home fire company shall consist of the e department, which shall be organized by the chief engi under his immediate charge and direction, or, in case assistant.

An engineer and fireman shall be assigned to the fire st for each ladder truck and hose reel, as well as for the fire as bucket and ax men, all of whom shall be thoroughly in as firemen.

1. In case of fire the man who may first see it shall at central boiler house and notify the chief engineer's cler

by causing the whistle to be blown for at least five minutes, and shall promptly notify the chief engineer, or his assistant, and the stable. The stable sergeant will immediately harness the steamer horses at the sound of the fire alarm, and send them to the engine house with the greatest possible speed. Should the fire alarm be sounded at night or during the absence of the sergeant of the stable, the stablemen will execute this order. Should the fire alarm be sounded while the team of horses are out at work, the driver will be instructed to unhitch at once and hasten with the horses to the engine house.

2. After receiving notice the chief engineer's clerk shall go or send to the office of the captain of the guard and give the locality of the fire. The captain of the guard or the sergeant in charge at the time, will promptly cause the bell of the mess hall, to be rung, then order the engineer at the pump house to start up both pumps, in order to keep a full head in the standpipe, and also send a man to notify the governor and officers of the fire. The Home guard, as soon as the alarm is given, will go to the fire and form a cordon about the burning building, to keep back the crowd and prevent them from interfering with the fire company.

3. On the sounding of an alarm the fire company will go promptly to the fire-engine house, man the hose reels and ladder trucks, and take them to the fire.

4. The engineer and fireman of the steamer will at once start the fire under the boiler, and as soon as the steamer shall have reached the cistern nearest the fire shall attach the suction, have hose run out from the steamer to the fire, and put the steam in service. On reaching the fire the hose shall be run out from the hose reels and attached to the nearest hydrants and the water turned on. Fire ladders will be placed where needed to carry hose or extinguishers to the upper stories, or to reach the roofs of adjacent buildings, in order to protect them with wet blankets or to pass up a line of buckets.

5. The chief engineer shall detail one or more men, as may be necessary, who shall inspect frequently the hydrants and all the standpipes or supply pipes in barracks and shops, and find by actual trial whether they are in good working order and in such condition that the water can be easily and quickly turned on. Captains of barracks and foremen of shops will be held responsible that no meddling with or handling of fire hose be allowed, except in case of fire.

6. Captains of barracks will detail upon each floor two men, one of whom shall be the corporal of the floor, who shall in case of fire take charge of and run out the hose from the barrack standpipe and turn on the water. Foremen of shops shall in like manner detail two men from the shop employees, whose duty shall be to go at once, in case of fire, and take charge of the fire appliances at the shop. Both captains and foremen will report promptly to the chief engineer any defect in the hose or water pipes in the barrack or shops, and shall carefully inspect the same at least once a week.

7. No pass will be given any member of the fire company until after an acceptable substitute shall have been provided, and until the pass shall have first received the signature of the chief engineer or of his assistant.

MEDICAL DEPARTMENT.

The hospital plant comprises a main building containing executive offices, kitchen, dining room, 7 wards, and the dispensary department; 1 double two-story brick building, 1 two story brick building, 2 two-story frame buildings, 4 one-story frame buildings, and the nurses' cottage. It has a capacity of 650 beds for patients. The convalescents are quartered in barracks Nos. 21, 24, and 26, and on the first floor of barracks 15 and 28, which are capable of accommodating 335 men. There are sufficient bath tubs in each ward to give about one to every 34 patients. Bathing is regulated by the ward surgeons. The hospital basements and attics are mostly used as storage and baggage rooms and as quarters for employees, except the attics in the main building, which are not used.

The average daily number of patients during the year was 566 in hospital, 302 in convalescent companies, and 127 at sick call. The total number of patients treated during the year was 6,354, and each case was treated an average of fifteen days, which is much less than reported at some of the other Branches. The cost of the hospital ration, including extra diet, which amounted to \$7,138.13 during the year, averaged 17.58 cents per day per patient.

Demented members are quartered in frame wa hospital under the care of special attendants. Th care for them are reported inadequate, and new seem needed. There were 204 members with n minds during the year, of whom 59 were co insane. The principal classes of dementia are se tic, and alcoholic, and acute and chronic mania. patients were sent during the year to the Goveri Insane.

Fifty-four members were reported totally blind so impaired as to be unable to read. Over 1 require assistance. Two men are employed to r hour in the forenoon and one in the afternoon.

There were 337 deaths among the members du 64 died outside of the Home. Of those who d were 6 suicides, and the deaths of 246 are repo causes. The death rate per 1,000 of the avera was 57.06, and is higher than reported at the hundred and forty-two members were buried a during the year, at an average cost per funeral are made at the Home carpenter shop at a cost is no allowance for funeral expenses of member Home.

The hospital employees of all kinds average 1 one employee to every four or five patients. Ma however, are not charged directly with the ca employed as drivers, waiters, dishwashers, cle lies, funeral escort, gravediggers, etc.

The amount expended during the year for was \$12,013.43. Those most used were alcohol opium, phenacetin, acetanilid, and purgatives.

NO. 5.—REPORT OF AN INSPECTION OF THE MADE SEPTEMBER 15 TO SEPTEMBER

This Home is located near Hampton, Va., at Monroe, and covers an area of 69 acres; but only have been acquired by purchase, the other 43 bei with privilege of renewals for similar periods, th been improved by valuable buildings, roads, water is perhaps the only instance, at least so far as ernment has made permanent improvements o Southern Branch ranks second as to population reservation; and it is the most densely populated There is a great variety in construction and desirable frame structures predominate. The farm of the off, and consists of land leased for that purpose. are a governor, a treasurer, a quartermaster, who subsistence, and a surgeon, who seem efficient discharge of their duties.

The average number of officers
Population. during the year was 3,376. The
ent was 3,480 on March 16, 1898
on July 10, 1897, showing a fluctuation of 249 i
ance. The absentees averaged 1,237 per day,
absent being 1,397 on June 20, 1898, and the lo

31, 1897. The number of absentees averaged over 300 more than at the Central Branch, which has the largest population. The following statement of members on furloughs June 30, 1898, was furnished:

Number absent.	Term of absence.
124.....	30 days.
189.....	60 days.
536.....	90 days.
370.....	180 days.
80.....	1 to 2 years.
52.....	2 to 3 years.
36.....	3 to 4 years.
8.....	over 5 years.

The total number cared for during the year was 5,305 and the average of the members 64 years.

At date of inspection there were present 3,255 officers and members and absent 1,397 members, showing a total of 4,652 on the rolls, exclusive of 31 temporary members. There were then 70 vacant beds in barracks and 20 in hospital.

On September 18, 1898, the members of the Home were reviewed, and 44.7 per cent of those present were seen in line. This proportion is smaller than attended this ceremony at the other Branches visited.

The principal breaches of discipline consist of intemperance, bringing whisky into camp, fence jumping, and absence without leave, and are punished by revocation of any pass privileges, restriction to the limits of the camp, labor on the roads, or dishonorable discharge for gross and repeated offenses. The last-named punishment was inflicted during the year on five members only, which seems small considering the large membership, and is much less than reported by the other Branch Homes; but the per cent of members given the lighter punishments is greater here.

The pass system seems to be liberal, and all members upon admission are allowed "daily" passes good from 9 a. m. to 6 p. m. At some of the other Homes the first passes to newcomers are granted only after they have been at the Home a month or two. After six months "weekly" passes are given good to go and come at pleasure from 7 a. m. to 7 p. m., except Sundays; and after a year "red card" passes are given good for every day, except Sunday, from 7 a. m. to 8.30 p. m. Violation of the Home rules forfeits pass privileges in proportion to the extent of the offense.

Facilities for amusement include theater, library, billiards and pool, card and smoking room, lectures, concerts, chess, checkers, baseball, boating, etc., and seem to give very general satisfaction.

The theater is a good-sized structure seating 1,400 persons, and was in very good condition. There were 52 performances given at an expense of \$9,865. Members were charged 5 and 10 cents for admission and others 25 cents to \$1, according to location; but under a recent order no admission fee is now charged to members. The revenues from the sale of seats were \$3,394.77. The number of plays given at this Branch during the year, as well as the expenses for the same and revenues from admission fees, were greater here than at any of the other Branches, and the entertainments given were reported of an excellent character. The theater is also used for celebrations by soldier organizations and encampments and for Sunday school exhibitions and public meetings. The billiard hall and amusement room are also in the theater building.

and there are ample facilities for all who desire games. The rooms are open from 8 a.m. to 8 p.m. and reported well frequented, especially in the winter.

The band was maintained during the entire year. It consisted of 24 musicians, of whom 22 were civilians. It was reported well attended and a success throughout the year. The civilian musicians are quarantined in frame cottages. The cost of maintaining them was less than at most of the other Branches.

The library was in very good condition and it contained 9,846 volumes. Books taken from the library were returned in good condition in two weeks. The total number of books returned during the year amounted to 43,650, or nearly 13 times the average present. Books of fiction and war were the most in demand. The average daily attendance was 185 during the year.

Much amusement is derived from boating, and the Branch has its own boats, which they keep in their own boat house. A small ferry runs to Hampton.

Divine services are held regularly. Religious services, very frequently on week days, are reported well attended.

The Branch, who resides on the Home grounds, held 474 religious services. The Branch who lives at Old Point, Va., 230 religious services. The place of worship is reported suitable for the purpose.

The farm, which is all leased to the Branch, is per annum, is located about a mile from the Branch and contains a herd of 33 cows and 230 hogs or pigs. The latter are usually slaughtered for the table. About 65 acres of the farm are under cultivation. The values of the farm products reported are as follows:

Vegetables for table	
Milk (17,985½ gallons)	
Fresh pork and lard for table	
Forage and vegetables fed to stock	
Sold (flowers, \$394.55; calves, \$12)	

Total

The cost of maintaining the farm proper is \$1,000. The eight buildings on the farm, used as a slaughterhouse, quarters for employees, tool frames and in good condition, except the kitchen and mule shed, which were originally on the farm. The brick stable and carriage house on the farm are considered part of the farm.

DISBURSEMENTS.

The accounts and disbursements of the Branch from October 20, 1897, the date of the last invoice, 1898, and involved \$952,749.60 pertaining to the post funds. The transactions concerning them are stated as follows:

On hand October 20, 1897:	
General fund	
Pension fund	
Post fund	

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1155

Received since:	
General fund.....	\$319, 047. 62
Pension fund.....	508, 974. 64
Post fund	68, 761. 19
	<u>\$896, 783. 45</u>
Total to be accounted for	952, 749. 60
Expenditures:	
General fund.....	329, 964. 11
Pension fund.....	489, 691. 69
Post fund.....	67, 297. 54
	<u>886, 863. 34</u>
Balance, 1898.....	65, 886. 26

which was all on deposit in bank except \$651.81.

The records in the treasurer's office submitted for inspection were found in very good form and creditable condition, and admitting of prompt inspection. The distance from the local depository at Norfolk and the time consumed in making personal trips there were reported as accounting for the large amounts of cash on hand pertaining to the post fund. These deposits averaged about two per month, and in amount were sometimes over \$7,000 and \$8,000 at a time, and many were over \$3,000. There was cash on hand of the post fund at date of inspection, September 18, \$544.03, and the date of last deposit was September 14, 1898.

The expense of transporting specie and currency from Norfolk to the Home is sometimes paid to a local banking firm and sometimes to Adams Express Company from the post fund.

The receipts during the year on account of this fund
General fund. were \$332,479.75 and the expenditures \$320,441.27, which is about \$94.92 per member of the average present.

The appropriation for the hospital expressly limits the purchase of furniture to "bedsteads, bedding and bedding materials, and all other articles necessary for the wards," and to "hospital, kitchen, and dining-room furniture," but quite a sum seems to have been expended here from that appropriation for the purchase of bedsteads, carpets, and rugs for the quarters of the assistant surgeon and for the nurses' cottage.

The receipts from posthumous sources during the year were \$5,153.54 and the disbursements \$4,390.51.

The number of employees authorized under the general fund, including officers and civilians, was 533, and the average daily number employed 531, which is about 15.7 per cent of the average present. The compensation paid them was about 23.7 per cent of the disbursements and averaged \$143.08 per employee, which is less than paid at the other Branches.

The failure to receive the amount necessary to meet the monthly pay roll, found at other Branches, was met here. The treasurer one month could not be paid, and the next month the surgeon had to go without his pay that others of more limited resources could be paid. This was not due to a lack of funds, as the fiscal year had just been entered on. The salary had been earned under authority, the employee was entitled to it, and there was money available to pay it, therefore there does not seem to be any good reason why these employees should be thus inconvenienced.

There were no special improvements made during the past fiscal year, except completing the sewage pumping works and other improvements begun during the previous year. The improvements authorized for the present year are

two frame barracks and furniture, for which appropriated. The needs reported for the coming year are for the building for receiving, storing, and quartermaster supplies.

There has been no change in the method of purchase. The purchases during the year amounted to \$1,000,000. The prices, which, for the principal articles of the last quarter of the year are given in the report, are reasonable. The prices of coffee, corned beef, sugar are generally lower, and of tea, beans, and most Branches.

At the close of the year the pension fund on the rolls, which was about 2,991 pensioners. Of these 2,991 were pensioners. Their pensions ranged from \$6 to \$72 per month. Concerning this fund during the year were as follows:

On hand June 30, 1897.....	Received during year.....
Total to be accounted for.....	
Paid to pensioners.....	
Balance June 30, 1898.....	

which was due to 208 pensioners in sums ranging from \$1,000.

The revenues of this fund are from the Home store, post exchange, and from the sale of tickets at the Home store. This is a summary of the transactions of the year:

Cash on hand June 30, 1897.....
Receipts:
Home store.....
Post exchange.....
Hotel and restaurant.....
Transportation.....
Amusements.....
Other sources.....

To be accounted for.....

Expenditures:
Home store.....
Post exchange.....
Hotel and restaurant.....
Clerks, etc.....
Fixtures.....
Amusements.....
Transportation.....
Other purposes.....

Total expenditures.....

Balance June 30, 1898.....

The earning capacity of the restaurant at this Branch seems to have been somewhat crippled since the employment of civilian waiters was discontinued, although waiters of this class are employed at the hotel of another Branch, for the alleged reason that it is not possible to obtain members having the necessary qualifications for such service.

The post fund, it appears, was called upon to help out the general fund to the amount of \$308.25 by paying the bill of the Newport News Water Company for water from June 16, 1897, to June 30, 1897, there not being sufficient funds to the credit of proper appropriation to pay the bill for the full month of June. This deficiency, as well as that in another Branch, possibly could have been avoided if the appropriations for the Branch Homes were disbursed for the benefit of the Branch for which the appropriation was made. An estimate is now made of the cost of heating and lighting the post-fund building, and that amount is charged to that fund. Whether the ratio was equitable could not be ascertained.

The buildings pertaining to the post fund are the band quarters (6 cottages), chapel, library, pavilion, social hall, theater, hotel, beer hall, and two quarantine cottages; and all are used for post-fund purposes, exclusively, except the chapel, library, and quarantine cottages.

SUPPLY DEPARTMENT.

There are 19 barracks at this Branch, ranging from
Barracks. poorly ventilated buildings of questionable sanitary condition to well-arranged modern structures. Three of the barracks have basements and three have attics, which are all in use as dormitories, the former housing 137, and the latter 145 members. The dormitory air space per man ranges from 320 cubic feet, which is less than reported by any other Branch, to 1,039 cubic feet. The barracks are all heated by steam and mostly lighted by gasoline gas, generated at the Home. Bathing facilities seem to be sufficient to give one bath tub to every 69 men; but the rules governing bathing do not seem uniform. The men in some companies are required to bathe weekly, and in others it is left to their own discretion. The beds, bedding, and lockers are all reported in good condition, but thin mattresses are still in use.

The barracks, as well as all other buildings, were given a number during the year, by which they are to be known in future. The following order was issued by the governor on November 11, 1897:

The designation of the buildings on grounds of this Branch, numerically, is hereby announced to the command. Hereafter in all communications and reports, where reference is made to any particular building or buildings, the designation shall be by number, as per this order.

Number of building.	Kind of structure.	By whom occupied and for what use.
1.....	Brick	Main building barracks, Companies A, B, C, D.
2.....	Brick and frame ..	Governor's residence.
3.....	Frame	Treasurer's residence.
4.....	do	Surgeon's residence.
5.....	do	Quartermaster and commissary of subsistence's residence.
6.....	do	Chaplain's residence.
7.....	do	Treasurer's, clerk and chief engineer's residence.
8.....	do	Chapel.
9.....	do	Nurses' cottage.
10.....	do	Adjutant and bandmaster's quarters.
11.....	Brick	Bakery.
12.....	Frame	Social hall.
13.....	Brick	Main laundry.
14.....	do	Mess hall and kitchen.

Number of building.	Kind of structure.	By whom occupied.
15.....	Brick.....	Steam fire-engine house
16.....	do.....	Gas house.
17.....	do.....	Boiler house.
18.....	do.....	Latrine.
19.....	do.....	Hospital laundry.
20.....	Frame.....	Pavilion.
21.....	Brick.....	Stables.
22.....	do.....	Carriage houses—"A" and "B."
23.....	do.....	Blacksmith, harness, and shoe shop.
24.....	Frame.....	Carriage-finishing shop.
25.....	do.....	Freight and bath house.
26.....	do.....	Hotel and restaurant.
27.....	do.....	Quartermaster storehouse.
28.....	do.....	Post exchange.
29.....	do.....	Paint shop.
30.....	do.....	Carpenter shop.
31.....	Brick.....	Commissary storehouse.
32.....	do.....	Theater.
33.....	do.....	Treasurer and quartermaster's office.
34.....	Brick, frame, and glass.	Conservatory.
35.....	Brick.....	Post-office—first floor.
36.....	do.....	Barrack, second floor, main.
37.....	Frame.....	Library.
38.....	do.....	Guardhouse.
39.....	Brick.....	Headquarters, governor's office.
40.....	Frame.....	Hospital.
41.....	Brick.....	Annexes "A" and "B."
42.....	do.....	Barrack, Company I.
43.....	Frame.....	Barrack, Company K.
44.....	Brick.....	Barrack, Company E (old).
45.....	Frame.....	Barrack, Company L.
46.....	Brick.....	Barracks, Company E (tent).
47.....	Frame.....	"B" west.
48.....	do.....	Barracks, Convalescent (tent).
49.....	do.....	Do.
50.....	do.....	Barrack, Company G (adjoining).
51.....	do.....	Barrack, Company F (adjoining).
52.....	do.....	Barrack, Company G (upper).
53.....	do.....	Barrack, Company H (west).
54.....	do.....	Barrack, Company F (adjoining).
55.....	do.....	Barrack, Company H (east).
56.....	do.....	Barrack, Company M.
57.....	do.....	Barrack, Company N.
58.....	Frame 1, 2, 3, 4, 5, 6.	Guard station (cemetery).
59.....	Frame 1, 2.	Band quarters (cottages).
60.....	Brick.....	Quarantine cottages (one).
61.....	do.....	Mortuary.
62.....	do.....	Hospital pumping station.
63.....	Frame.....	Gasoline storehouse.
64.....	do.....	At farm, barn for cattle.
65.....	do.....	At farm, piggery.
66.....	do.....	At farm, quarters for men.
67.....	do.....	At farm, slaughterhouse.
68.....	do.....	At farm, kitchen and mess hall.
69.....	do.....	At farm, tool house.
70.....	do.....	At farm, for housing cavalry.
71.....	do.....	At farm, shed for mules.
72.....	do.....	Barrack, Company E (L).

The system of designating buildings by number is convenient and has been found convenient and useful.

Supplies and stores on hand are properly cared for, but storage is inadequate. Besides the two storerooms for quartermaster and brick No. 31 for commissary, the cellar under the hospital building, the cellar under barrack No. 44, and the cellar under the hospital building are used as storerooms. But no loss has occurred.

The supply of clothing on hand was sufficient for the year. The supply of shoes, especially Nos. 6 and 7. The invoice value of the year was \$30,624.57 from the government by purchase, and \$760.09 by transfer. Returned clothing was \$1,000.00.

higher authority are not made, except in the case of that received from the general depot.

Requisitions for forage seem to be made to cover issues made. Would it not be possible to have a forage return upon which to base issues and insure some approximate accountability for such expenditures? Some closer supervision is suggested over the coal supply. As soon as coal is received it is charged off the property book upon a requisition signed by the engineer, and no further account is kept of it. At no time does the record show whether there should be 10 or 500 tons on hand. It also seems possible, from a test made, that property may be received, paid for, and expended without leaving a trace in the property books; and such a condition is not confined to this Branch, but is equally possible under the methods at the other Branches.

The following is the bill of fare for the week ending June 30, 1898:

Food.

Friday.—Breakfast: Mackerel, potatoes, bread, oleomargarine, coffee. Dinner: Clam chowder, rice pudding, bread, oleomargarine, coffee. Supper: Prunes, cheese, bread, oleomargarine, tea.

Saturday.—Breakfast: Cold meat, potatoes, bread, oleomargarine, coffee. Dinner: Roast beef, tomatoes, potatoes, bread, oleomargarine, coffee. Supper: Bologna sausage, bread, oleomargarine, tea.

Sunday.—Breakfast: Breakfast bacon, baked beans, bread, oleomargarine, coffee. Dinner: Roast mutton, rice pudding, potatoes, bread, oleomargarine, coffee. Supper: Stewed apples, bread, oleomargarine, tea.

Monday.—Breakfast: Smoked shoulder, potatoes, bread, oleomargarine, coffee. Dinner: Beef stew, bread, oleomargarine, coffee. Supper: Stewed peaches, bread, oleomargarine, tea.

Tuesday.—Breakfast: Smoked shoulder, potatoes, bread, oleomargarine, coffee. Dinner: Beef stew, bread, oleomargarine, coffee. Supper: Stewed peaches, bread, oleomargarine, tea.

Wednesday.—Breakfast: Hash, bread, oleomargarine, coffee. Dinner: Corned beef, cabbage, potatoes, bread, oleomargarine, coffee. Supper: Stewed apples, bread, oleomargarine, tea.

Thursday.—Breakfast: Cold meat, potatoes, bread, oleomargarine, coffee. Dinner: Roast beef, lima beans, potatoes, bread, oleomargarine, coffee. Supper: Hominy, sirup, bread, oleomargarine, tea.

To prepare and serve the food there are some 36 men permanently employed in the kitchen and 29 in the dining hall, and a large number of men is detailed additionally in rotation as kitchen and dining-room help. Kitchen and dining hall were in good condition. The latter contains 22 tables, which will seat comfortably 1,144 men and have to be set twice, and several tables three times, for each meal. Facilities for receiving and taking care of supplies and for cooking and serving meals are reported ample.

The breakage of crockery runs from 8 per cent for saltcellars to 85 per cent for coffee cups, and is said to be due to its not nesting properly, quality, and handling. The following is a summary of the crockery reported on hand, received, and expended:

Pieces on hand July 1, 1897.....	39, 114
Received during year	3, 408
	<hr/> 42, 522
Broken and condemned	18, 672
	<hr/> 23, 850
On hand June 30, 1898.....	

Swill and garbage are fed to the hogs and pigs at the farm, and what is not required there is sold at 30 cents per barrel of 30 gallons each. The receipts from this source were \$560.10 for the year.

Sales of commissary supplies are made to about 30 persons, which includes civil employees and members with families living outside the

Home. Rations were commuted to 12 persons of the ration for the previous quarter, which was of commissary supplies ascertain from the comm proposed bill, and then deposit with the treasury. Except milk and ice, which are delivered daily, tickets are issued, and meat, all the goods are on plan seems to commend itself as less complex some of the Branches.

The shop accounts were not in condition. An attempt to verify that during a given period more than was issued, including the reported amount of the period. The profits made by the various past fiscal year were reported as \$16,872.94.

The method of conducting the laundry differs somewhat from that at other branches. Members carry their own garments to the laundry for them, a laundry number, furnished by the branch, is affixed to each article. The clothes from the branch are sent in bulk, and are returned assorted by weight. No member is permitted to send three pieces, though he occasionally brings more. Private underwear is on the same conditions as Home clothes. To conduct the laundry required 15 men and 14,923 gallons of soft soap, at an expenditure of \$2,069.85 for labor and materials. The cost of making soap was 4 cents per pound of hard soap, and 1 gallon of soft soap.

The laundry list indicated about 4.2 sheets, 4 2.2 drawers, 0.2 socks, and 1.3 roller and 0.23 ham month.

The chief engineer has general charge of the engineering department, steam, water, sewer, gas, etc. 40 men. Water is supplied by the

Water Company, and salt water. The supply of fresh water is reported limited. The age seem to be satisfactory.

The steam plant consists of 13 70-horsepower boilers used for the purpose of heating and furnishing power. There are 3,654,604 cubic feet of steam heated. The cost of maintenance of the steam plant for the past fiscal year, or \$111.10 per month, or \$23,349.97 for the past fiscal year, or \$111.10 per month.

The lighting plant of the Home consists of 1,836 gas lights, produced from gas. The cost of maintenance for the year is reported as \$5,830.60, or \$3.18 per light. There are also 21 arc lights and 10 lights for lighting grounds and various buildings furnished by the Chesapeake Light and Power Company.

The ice plant, which is located in the commissary, has 15,000 cubic feet of air, and the machine has a capacity of 15 tons of ice per day, at a cost of about \$1.76 per ton.

This department consists of 10 men and a steam fire engine. The engine and hose in barracks. The apparatus is adequate and in good condition. There were no fires during the past fiscal year.

MEDICAL DEPARTMENT.

The hospital consists of a large brick building with basement and attic and two frame annexes, having a capacity for 450 patients. Both basement and attic are used as wards for patients and for quartering attendants. The convalescents are quartered in three old buildings, one brick and two frame, all connected into one, and having a capacity for 274 patients. The bathing facilities of the hospital consist of 16 bath tubs, located in the different wards, with an average of 27 patients to each tub.

The average daily number of sick during the year was 441 in hospital, 225 in convalescent company, 58 in barracks, and 69 at sick call. At date of inspection, September 18, 1898, there were 421 in hospital, 267 in convalescent company, and 56 at sick call. The total number of patients treated during the year is reported as 2,885, with an average of 5.5 days to each case, which seems low compared with the figures given by other Branches. The surgeon reported 45 cases of diarrhea during the year, caused by drinking impure water or eating improper food. The cost of the hospital ration, including extra diet, averaged 19.69 cents, and the cost of the extra diet is given as \$916.43, which is less than that given by some of the smaller Branches.

There were 155 members showing indications of disordered minds during the year, of whom 23 were considered permanently insane. They are quartered in the hospital under the care of the attendants, 8 being in the hospital basement. Facilities for their proper care seem inadequate, and a special building and separate grounds are said to be needed. Seven were sent during the year to the Government Hospital for the Insane.

Sixteen members were reported totally blind and 55 with an impaired sight so as to be unable to read. One of the hospital attendants is employed to read to them twice a day.

There were 230 deaths during the year, of which 209 occurred at the Home. Among them were two suicides, one who died from violence, and five from the results of accidents; the death of the others is ascribed to natural causes. The number of deaths give a mortality rate of about 49.86 per 1,000 of the average present and absent. Burials take place at the neighboring national cemetery, unless the bodies are sent home for burial. The cost of a funeral is \$8.99, including coffin, band, grave, and all other expenses, which is the lowest reported from any of the Branches. The coffins also cost less. No allowance is made for funerals of members dying outside of the Home, but bodies sent home for burial are clothed in uniforms.

The hospital employees of all kinds averaged 98, of whom 24 were civilians, giving about 1 employee for every 8 patients.

About 292 different drugs and preparations were used in the dispensary, and the amount expended for the same during the past year was \$6,265.94. The hospital seemed in good condition and well managed.

The surgeon usually makes personal reports daily to the governor on the sanitary condition of the hospital, the sick, the quarters, and the command generally, and written reports as occasion requires. The governor makes a monthly inspection report to the president of the Board of Managers. The principal needs of the Home for improving its sanitary condition, as reported by the surgeon, are more quarters to relieve overcrowding and better ventilation for dormitories in winter.

NO. 6.—REPORT OF AN INSPECTION OF THE
MADE OCTOBER 6 TO OCTOBER 11

This Branch covers 640 acres of fine ground, the Missouri River, within easy reach of Leavenworth or street car. Most of the buildings are of brick and all similar in design and structure. A guardhouse is built the year. The general condition of the Home is good. The handsome band stand near the headquarters chapel, and the admirable dining-room service at the Branch. Its principal officers are a governor and a master, who is also commissary of subsistence, an efficient and attentive to their duties.

The average number of officers and men during the year was 2,480. The population present was 2,599 on January 28, 1898, on July 1, 1897, showing a fluctuation in the average. The absentees averaged 728 per day, the greatest time being 971 and the lowest 597. About 300 men for periods ranging from one to six years. The average during the year is reported as 4,020 and the average ages as 63.49 years.

At date of inspection there were present 2,544 and absent 828 members, showing a total of 3,372 of 36 temporary members. There were then no men in the racks and but 16 in the hospital, and 46 men and over 300 in basements. So it seems the men are severely taxed, notwithstanding 800 or more were on furlough.

Most of the members present—about 65 per cent at review, which was well performed. The governor gave the following order preparatory to the ceremony.

I. On Monday, October 10, 1898, at 9 o'clock a. m., men inspected and reviewed by Col. C. H. Heyl, Inspector-General.

II. Captains will form their companies near the headquarters fifteen minutes before the parade hour, and take positions directed by the adjutant.

III. Members too much disabled to march but desiring inspection will form in front of the dining hall, proper as above stated.

IV. Officers of the Home will report at headquarters at 8 o'clock for parade.

V. All labor except such as is essential will be suspended until after inspection and review.

The appearance of the men was good and made a fine display.

Discipline seems well maintained. Offenses are intemperance, absence without leave, neglect of orders, and neglect of guard of orders, and neglect of orders. Penalties imposed are labor without pay or discharge. Penalties are not imposed, nor are the members confined to punishment. Sixteen members were dishonored during the year, and 84 per cent of the average present. Permanent passes good from 7 a. m. to 8.30 p. m. are in good standing, and other passes are issued for special duty.

A new guardhouse was erected during the year, the basement heretofore used as such.

Amusements.

These include entertainments in the amusement hall, theatrical performances, band concerts, library and current literature, billiards and pool, cards, checkers, dominoes, quoits, and boating and fishing.

The second floor of the dining hall, and which is known as Franklin Hall, is fitted up as a theater, but does not seem well arranged for the purpose, as it lacks acoustic properties and does not give a good view of the stage, as the seats are on a level, and in case of fire a perplexing problem would confront the Home officials, as there is no other place available for feeding so large a number of men. A recent improvement was noted in the erection of two large outside stairways as a means of exit from the theater. However, it is reported that the erection of a new theater building is now under contemplation. Theater entertainments are under charge of an amusement committee appointed by the council of administration. There were 25 performances during the year at an expense of \$2,245, which is met from the post fund. Members are admitted free of charge, but officers and others are charged from 25 to 50 cents.

The band was maintained during the entire year with an average strength of 17 musicians. At date of inspection it contained 19, of whom 18 were civilians. It gave 357 concerts during the year, of which over half were out of doors, all reported well attended. The programs consist of classical and popular music and national airs. The civilian musicians are quartered in one of the barrack basements, and receive dress uniforms and the same rations as members. Their average compensation per month is \$22.50. The total cost of the band for the past year, including subsistence and other allowances of the civilian members, was \$7,024.17, which is met from the post fund.

The library is located on the second floor of the headquarters building, which is known as the Ward Memorial building. It was generally in fair condition, but the furniture needs repairing and renovating and a number of books need rebinding. At date of inspection it contained 9,179 volumes and a fair amount of current literature. The circulation reported during the year was 20,505, which gives about 8.3 volumes per member of the average present, and is less than reported by the other Branches. Fiction and history seem to be in greatest demand.

The billiard and similar tables are reported in frequent demand, but there is no special card room except in the hospital, compelling the men to play on the tables in the barracks.

Outdoor amusements consist of boating, fishing, and quoits. The boats are on the artificial lake in front of the hospital, and the quoiting ground is in the ravine in rear of the barracks.

Religious services are held daily in the Home chapel, which is an artistic structure and well suited as a place of worship. The Roman Catholics occupy the basement and the Protestants the ground floor. Services are reported well attended. The Protestant chaplain lives on the Home grounds and the Roman Catholic near the reservation.

Farm.

The farm comprises 122 acres under cultivation, and contains 1 large handsome brick and stone stable, 1 wagon house, 1 vegetable shed, and 3 greenhouses. The transportation consists of 23 vehicles of all kinds and 16 public animals, which are used for general farm and road work. No other animals belonging to the Home are kept on the farm. The employees of the farm and garden, including those employed in teaming and on the

lawn, average about thirty. The products are turnips, sweet potatoes, onions, beets, spinach, vegetables, and apples and grapes. The vegetables were sold at \$3,271.59, the apples at \$612.18, and the grapes at \$1,533. The cost of the produce was \$1,632.77. The cost of the produce was \$1,632.77. The cost of the produce was \$1,632.77.

DISBURSEMENTS.

The accounts and disbursements of the treasury for the year ending September 9, 1897, the date of last inspection, involved \$788,129.80, pertaining to the general, pension, and improvement funds. The following is a summary of these funds:

On hand September 9, 1897:

General fund	
Pension fund	
Post fund	
Improvement fund.....	

Received since:

General fund	
Pension fund	
Post fund.....	

Total to be accounted for.....

Expenditures:

General fund	
Pension fund	
Post fund.....	
Improvement fund	

On hand October 8, 1898.....

which was all on deposit in bank, except \$50.

The receipts during the year ending September 9, 1897, of this fund, were \$274,000.00, which is about the average present.

The receipts on posthumous account were \$6,000.00, \$1,587.28.

The improvements made during the year ending September 9, 1897, of new steam boilers, a guardhouse, and the paint shops, for which \$14,000.00 was expended.

The improvements authorized for the present year are the electric-light plant, the erection of a storeroom in the basements of barracks now used for storage for female nurses, at a cost not exceeding \$18,000.00. The improvements reported needed are two barracks, ice plant, cow barn, blacksmith shop, and hospital, which an estimate of \$62,251 has been made. Among these needs are the barracks, for the purpose of housing the soldiers. The overcrowded condition here seen in the barracks room, and the request should be granted to enlarge this Home.

Employees. The number of employees authorized under the general fund, including officers and civilians, is reported as 444, and the average number actually employed as 378, which is about 15 per cent of the average present. The compensation paid them was about 28 per cent of the disbursements, and averaged about \$194 per employee.

Purchases. These are usually made under contract, but 502, involving \$8,358.26, were made in open market. The principal items among the open-market purchases were hardware and agricultural implements, \$2,029.23; transportation, \$1,768.87; furniture, carpets, etc., \$971.76; fruit, etc., \$759.91; freight and express, \$404.08; horses, \$360; oil, glass, paint, etc., \$272.84; lumber, doors, etc., \$248.27; books, typewriters, etc., \$236.75; and trees, shrubbery, seeds, etc., \$201.49. The principal articles of food for the last quarter of the fiscal year were mostly bought in Leavenworth, Kansas City, and Omaha. Compared with the corresponding period of the previous year, there has been an increase in the cost of fresh beef, corned beef, tea, bacon, fresh fish, and sugar; and a decrease in coffee, salt pork, codfish, lima beans, ham, oleomargarine and cheese.

Pension fund. At the close of the year there were 2,921 pensioners on the rolls, which was about 85.5 per cent of the membership. Of these, 2,115 were present at the Home. Their pensions ranged from \$6 to \$50 per month. The transaction concerning this fund during the year was as follows:

On hand June 30, 1897	\$12, 788. 47
Received during year	375, 768. 10
Total to be accounted for	388, 556. 57
Paid to pensioners	378, 718. 04
Balance June 30, 1898	9, 838. 53

which was due 91 pensioners in sums ranging from less than \$100 to over \$500.

Post fund. The principal revenues accruing to this fund are derived from sales at the Home store, restaurant, and beer hall, and the profits from these sales are disbursed in the interest of the members for improvements, amusements, salaries, and other purposes. The band, for instance, is paid from this fund. The beer hall gives the largest revenues, the gross profit during the past year being nearly \$14,000. The consumption of beer amounted to 60,992 gallons, which seems large in the aggregate, though it is but slightly over one-half pint per man per day.

The following is a summary of the transactions of this fund reported for the year:

On hand June 30, 1897	\$4, 626. 10
Receipts during year:	
Sales, Home store	\$9, 608. 05
Sales, beer hall	25, 038. 55
Sales, restaurant	1, 499. 75
	36, 146. 35
Transportation	516. 61
Amusements	33. 15
Other sources	1, 343. 21
	1, 892. 97
To be accounted for	42, 665. 42

Expenditures:

Stock, Home store.....
 Stock, beer hall.....
 Stock, restaurant.....

 Clerks and other help.....
 Fixtures.....
 Amusements.....
 Transportation.....
 Insurance.....
 Construction.....
 Other purposes.....

Total expenditures.....

Balance June 30, 1898.....

This fund gives employment to about 45 men of the average number of members present. It is provided with a cash register. The check on the hall is similar to that of the Northwestern Branch, which is exchanged for tickets only, which must be purchased for the hall.

This is a special fund, and was established for the improvement of Leavenworth for the improvement of the Home was established. It was disbursed at the rate of about \$5,000 per annum and a fund was expended during the year.

SUPPLY DEPARTMENT.**Barracks.**

The barracks appeared to be better than they are. There are thirteen of them, each a two-story building with a basement and attic. They were originally built for 124 men each, but are at present occupied by about 100 men. In the basements, of which eight are used as storerooms, five basements are used for storage purposes, but upon the occupancy of the new storehouse. The space except for storing the personal baggage of men seemed low, and averaged less than 40 cubic feet and the lowest reported was about 40. The barracks have steam, and have a special system of ventilation. There are shafts in each barrack with registers near floor level forward and in halls. They are also provided with water closets, averaging one bath tub for every 82, one urinal for every 20 men.

Thin mattresses have not yet been entirely replaced. The old kind, weighing 8 pounds, are still in use. The bedding, and lockers was generally good, and the men are required to air their bedding and keep their beds clean. The lockers are 2 feet high, 2 feet wide, and 1 foot deep, and provide one drawer.

Supplies.

The storage facilities for quartermaster stores have been unsatisfactory. On account of no loss or deterioration of supplies on account of poor storage, except of 680 pounds of property received during the year was \$25,000 at the depot, \$172,367.13 by purchase, and \$2,860.12 from the property received from the general depot,

tableware, clothing, and bedding, are made quarterly to the president of the Board of Managers, and of all other property monthly to the governor of the Home, and inventories are taken semiannually. Furniture and other property is reported, marked as nearly as possible, and taken up as public property.

Clothing when received is inspected and taken up on the property books, and thereafter issued on approved requisitions and charged to the individual clothing accounts. Clothing turned in, if still serviceable, is cleaned and reissued, and care seems exercised to get the longest possible wear out of it. When unfit for further use, it is condemned and sold as rags, the prices obtained during the past year ranging from one-half cent per pound for blouse linings to 12 cents per pound for dress coats, the whole amounting to \$793.61.

The following is the bill of fare furnished for the week ending June 25, 1898:

Food.

Sunday.—Breakfast: Boiled ham, bread, butter, and coffee. Dinner: Roast mutton, potatoes, pickles, pudding, bread, and coffee. Supper: Stewed fruit, cold roast beef, bread, butter, and tea.

Monday.—Breakfast: Beef fricassee, bread, butter, and coffee. Dinner: Boiled salt pork shoulder, potatoes, stewed tomatoes, bread, and coffee. Supper: Stewed currants, beef rumps, bread, butter, and tea.

Tuesday.—Breakfast: Beef hash, bread, butter, and coffee. Dinner: Roast beef, stewed navy beans, potatoes, bread, and coffee. Supper: Stewed fruit, cold roast beef, bread, butter, and tea.

Wednesday.—Breakfast: Pork and beans, bread, butter, and coffee. Dinner: Beef stewed, crackers, bread, and coffee. Supper: Sweet buns, cold roast beef, bread, butter, and tea.

Thursday.—Breakfast: Beef hash, bread, butter, and coffee. Dinner: Roast beef, pickles, potatoes, stewed tomatoes, lima beans, bread, and coffee. Supper: Bologna sausage, hominy grits, bread, butter, and tea.

Friday.—Breakfast: Boiled mackerel, potatoes, bread, butter, and coffee. Dinner: Codfish, roast beef, potatoes, pudding, pie, bread, and coffee. Supper: Stewed apples, cold roast beef, cheese, bread, butter, and tea.

Saturday.—Breakfast: Beef hash, bread, butter, and coffee. Dinner: Roast beef, young onions, potatoes, stewed tomatoes, bread, and coffee. Supper: Beef rumps, bread, butter, and tea.

To prepare and serve the food requires about 16 men in the kitchen and 15 in the dining hall, and an additional detail of about 71 men. The kitchen and dining hall were in good condition, the latter especially being a model of neatness and arrangement, and facilities for receiving and taking care of supplies and for cooking and serving the food seemed ample. The commissary department is conveniently located in the basement under the dining hall. The tables have room for 1,080 men, and require to be set twice for each meal. The breakage of crockery averaged about 40 per cent, being largest in coffee bowls and lowest in mustard pots, and is said to be due to the old age of the members handling it and the quality of the ware.

The refuse of the kitchen, amounting to about 60,000 pounds per month, is given away for hauling it from the grounds. At some of the other Branches it is sold or otherwise utilized.

Outdoor relief is not given to any of the members.

Clothing is sent to the laundry on Mondays and returned Thursdays and Fridays. Receipts are given and taken both going and returning, to guard against loss. Members may send whatever articles of bedding and clothing may be necessary, but private underwear of members is not laundered by the Home. The laundry list indicated about 3.3 shirts, 3.8 drawers, 1 pair of socks, 2.4 hand towels, 0.2 roller towels, 5 sheets, and 5.4 pillowcases per man per month.

Laundry.

To do the laundry work required the services and 64,350 pounds of soap, at an expenditure of \$1,769.20, which seems very reasonable, and a man per year.

Protection against fire consists in the fire department. plugs with hose and nozzle attached at suitable intervals over the ground, throwing a stream of water over any of the building plug. Each plug with its attachment is placed in a structure not unlike a sentry box in appearance, and contains hose and fire extinguishers and fire bell constantly filled. There is no fire engine. A civilian employees are instructed in using and respond to the alarm. Two men are employed to clean the fire hose, which has been in use for a long time and need renewing. One small fire occurred during the year, causing any loss.

The chief engineer has general charge of the engineering and repairs, and of the heat service, and employs in his department.

The steam plant, located in the boiler house in the barracks, consists of two 200-horsepower and two 100-horsepower boilers, which are used for heating the barracks, quarters, and greenhouses; for cooking, and for generating power for the electric-light plant, the laundry, and the engineer shop. The plant is reported to cost \$100,000, and its cost of maintenance for the past year was \$10,000 per horsepower. There are 3,173,441 cubic feet of steam generated annually.

The electric light plant is also located in the barracks, and furnishes a current for 30 arc lights for lighting the buildings are lighted by gas, furnished by the city, but an extension of the electric plant has been ordered.

The system of water supply is reported satisfactory. The water being furnished by the Leavenworth City.

Sewage and surface drainage empty through the Missouri river. It is reported that the construction of a culvert now building will improve the system.

MEDICAL DEPARTMENT

The hospital plant consists of a main 3-story brick building, with three wings, a 1-story building for convalescents, a building for the insane, and a morgue. The convalescent company occupies one of the barracks. These buildings are a part of the barracks. The capacity of the hospital for patients is 198, of whom 132 are convalescents and 152 are patients.

The basement of the hospital is used as dormitory for sick call, for storage, and for various other purposes. It is used for nurses and for some of the patients. There are 11 porcelain-lined bath tubs, with hot and cold water, which gives an average of about 25 patients treated daily. The bathing of the patients is regulated by the surgeon. The required to bathe on admission and weekly thereafter. The hospital seems to be satisfactory.

The average daily number of sick during the year was 132 in convalescent company, 46 in barracks.

The total number of patients reported treated during the year was 3,770, with an average of thirty-five days to each case. The cost of the hospital ration, including extra diet, averaged 16.81 cents per man per day, and the expenditure for extra diet was \$876.90 for the year. The surgeon reports 115 cases of malarial and kindred fevers as caused by the proximity of the Missouri River.

There were 50 members showing indications of disordered minds during the year, of whom 41 were considered permanently insane. They are quartered in a building specially erected for the purpose, with all necessary conveniences, and are cared for the same as patients in the hospital. Facilities to take proper care of these patients seem to be ample. Seventeen insane members were sent during the year to the Government Hospital for the Insane at Washington.

Eighteen members were reported to be totally blind and 56 with an impaired eyesight so as to be unable to read. One member is employed to read to them daily.

There were 172 deaths during the year, of which 31 occurred outside of the Home; of these, 3 committed suicide, 1 died from violence, 8 from the results of accidents, and 160 died a natural death. The death rate was about 53.62 per 1,000 of the average present and absent. About 82.6 per cent of the deceased members were buried at the Home cemetery, at a cost of \$12.73 per funeral. Nothing is allowed for funeral expenses of members dying outside of the Home. Coffins are made at Leavenworth, Kans., at a cost of \$4.50 each, which is less than reported by most of the other Branches.

The hospital employees of all kinds averaged 95 during the year, which gives about one employee for every four or five patients.

The amount expended during the year for medicines, drugs, etc., was \$4,400.39, which is less than was expended at one or two other Branches with a smaller population.

The surgeon reports that, in order to improve the sanitary condition of the Home, the water-closets should be improved or renewed and the drainage completed.

NO. 7.—REPORT OF AN INSPECTION OF THE PACIFIC BRANCH, MADE OCTOBER 15 TO OCTOBER 18, 1898.

This Home is located about 3 miles from Santa Monica, Cal., on the Southern Pacific Railroad, between the ocean on one side and mountains on the other, occupying about 630 acres of ground, improved by fruit and other trees and tropical vegetation. The buildings are generally frames, and the style of architecture, with broad verandas, gives them a Southern air. Its principal officers are a governor, a treasurer, a quartermaster, who is also commissary of subsistence, and a surgeon. This Home is older than the Marion, but somewhat less populous.

The average number of officers and members present during the year was 1,602. The greatest number present was 1,768, on December 13, 1897, and the lowest 1,476, on June 30, 1898, showing a fluctuation in the average attendance of 292. The absentees averaged 484 per day, the greatest number absent at one time being 604 and the lowest 415. Some of these have been absent for several years, and it seems that a limit might well be set beyond which unsaid absentees are to be dropped from the rolls.

The total number cared for during the year is reported as 2,447, and the average age of the members as 61.58 years.

At date of inspection there were present 1,517 officers and members,

and absent 588 members, showing a total of 2,1 of 6 temporary members.

On October 19, 1898, the members were reviewed of those present being seen in line. The ceremony and the members presented a good appearance.

The principal breaches of discipline without leave and drunkenness and 60 cases, respectively, re-

imposed are confinement to the limits of the aggravated cases labor without pay for short periods, grounds, etc. There were 18 cases of gross in the penalty was dishonorable discharge. Sent to the guardhouse were not imposed, unruly members merely to prevent them from disturbing the comrades. One member was undergoing a labor without pay at date of inspection. The 90 per cent of the average present were not present.

Short passes are granted by company commander on the governor's approval. Card passes, sent and come at will from morning until 8 p. m., are present at inspections and answer all details, and in good standing.

Facilities for amusements command Amusements. where theatrical performances, library, and indoor games.

The new amusement hall, for which the Board appropriated \$8,000 from the post fund and \$6,000 from fund, is about completed, with the exception of It will seat about 750 persons and meet a long of entertainment is in the hands of an amusement authority, however, is limited to making recommendations to the governor deciding as to the class and character of to be given. The new hall will be under the command of administration, consisting of the commission. There were but five performances given during the new hall, which is a temporary frame building unsuitable, and had to serve for all assembly exercises, entertainments, and meetings of the Graded Societies of the Home. A uniform charge of 15 cents to theatrical entertainments, the receipts going to their services. There were, therefore, no expenses which at other Homes are borne by the post fund.

There is a singing club at the Home, composed of civilian employees; and some of the amateurs at times take part in entertainments arranged for societies. The Women's Relief Corps, Ladies' Aid Society, Woman's Christian Temperance Union, and others take special interest in the welfare of the Home frequently.

The library occupies the second floor of the head well arranged and satisfactorily conducted, but in need of more reading matter of every description. 2,029 volumes in the library at the close of the year. The average members present and absent. By the library for one week at a time and renewed.

lation reported for the year was 14,900, which is an average of a fraction over nine books per member.

The band was maintained during the entire year with an average of 12 bandsmen, of whom 9 were civilians. Its cost, including subsistence and other allowances of civilians was \$4,032.61. It gave 364 concerts during the year, all out of doors and well attended, playing each afternoon on the balcony of the general mess hall, whence the music can be heard on the porches of adjacent barracks.

There are no billiard or similar tables owned by the Home, the only table of this kind at the Home belonging to the Keeley Club, located in one of the hospital basement rooms. Cards, chess, checkers, and backgammon are played in the barracks and the hospital, there being about 37 tables for this purpose, which, it is believed, give fair opportunity to all who desire to play. There are no outdoor games, though it seems the balmy climate and ample room on the grounds should encourage them.

These were held in the frame assembly hall, which

Religious services. is entirely too small and unfit for the purpose. The new hall, now about completed, it is thought will give ample opportunity for all who may desire to attend. But a chapel should be given this Branch, as more satisfactory than holding divine services in a hall primarily intended for amusements. There is no resident chaplain at the Home, the Roman Catholic chaplain living at Santa Monica, 4 miles distant, and the Protestant at Los Angeles, 14 miles distant. Services are also held by others interested in the spiritual welfare of the members.

Farm. There are 460 acres under cultivation at this Branch, which is more than at most of the other Branches, and considerable attention is given this feature of the Home. The farm contains 18 different buildings and sheds, most of which are temporary structures in poor condition; 26 vehicles of all kinds, 20 horses, 2 mules, 31 cows, 1 bull, and 360 pigs, and employs about 40 hands. The farm stock on hand June 30, 1898, was valued at \$4,900. Horses or cattle no longer required on the farm are inspected and condemned and sold at public auction; hogs are slaughtered and turned into the commissary department at market value. There are 6 private horses kept on the farm. A charge of 15 cents per day is made for the keeping of all such not entitled to forage.

The following were the principal classes of products of the farm and their value:

Forage	\$3,894.20
Pork	3,496.02
Vegetables	3,492.70
Milk	2,129.70
Fruit	725.73
Chickens and eggs.....	381.22

Total..... 14,119.57

Over \$10,000 worth of this produce went to the table. The cost of maintaining the farm proper is reported as \$5,333.64.

DISBURSEMENTS.

The accounts and disbursements of the treasurer were inspected from August 27, 1897, the date of last inspection, to October 17, 1898,

and involved \$579,997.28, pertaining to the general fund, and the Ward fund. The following is a summary of actions concerning these funds:

On hand August 27, 1897:

General fund	
Pension fund	
Post fund	
Ward fund	

Received since:

General fund	
Pension fund	
Post fund	

Total to be accounted for	
Expenditures:	
General fund	
Pension fund	
Post fund	
Ward fund	

On hand October 17, 1898.....
which was all on deposit in bank, except \$125.55.

The receipts during the past year of this fund were \$212,173.75, \$209,593.08, which is about \$13 average present. The liabilities reported at the close of the fiscal year 1898 were \$2,474.29, under the head of hospital, and hospital.

The receipt on posthumous account amounting to \$1,167.51, and the disbursements to \$1,167.51.

The improvements effected during the year were: of putting in two Sterling boilers, each, at a cost of \$2,971; sinking a well, at a cost of \$2,967.59, and laying 3,360 feet of new pipe line at a cost of \$4,202.97, to connect the Home with the Water Company's pipe line for conducting water to the system of water supply.* Further improvements contemplated are a bakery, at \$8,450; oil tanks; and alteration of hospital attics for nurses' quarters. For the year ending June 30, 1900, estimates for improvements: treasurer's quarters, \$7,933.45; two additional church, \$14,074.75; addition to electric-light plant, \$5,174.47; total estimated cost, \$87,100.87.

The number of employees authorized for the year ending June 30, 1900, is 100, but the number actually employed is about 18 per cent of the average present. The

* A contract was made with this water company to develop a reservoir constructed by the company for \$825. The reservoir is reported as 100,000 gallons, and is located on the ground back of the bakery and about 383 feet above the Home grounds to be maintained by the water company. The old water system from the canyon and Lake Brown in connection with the new in case of fire.

amounted to \$59,494.27, which was about 28 per cent of the disbursements and averaged \$205.86 per employee. An average of 82 members worked daily without pay—not as a penalty—performing such duties as waiters in the mess hall, kitchen help, picking fruit, etc.

Purchases. These are generally made under contract. The reports show that 268 purchases, involving \$4,983.85, were made in open market. Among them were such items as furniture, stores, lard, drugs, canned fruits and vegetables, powder for blasting graves, lumber, live stock for farm, seeds and plants, and stable equipments. The principal articles of food for the last quarter of the year were all bought in Los Angeles, which is about 15 miles distant and connected with the Home by rail.

Pension fund. At the close of the year there were 1,634 pensioners on the rolls, which was about 78.5 per cent of the membership. Of these, 1,165 were present at the Home. Their pensions ranged from \$6 to \$24 per month. The transactions concerning this fund may be briefly stated as follows:

On hand June 30, 1897.....	\$9, 107. 23
Received during year	216, 708. 51
Total to be accounted for	225, 815. 74
Paid to pensioners during year	220, 028. 79
Balance June 30, 1898	5, 786. 95

which remained due to 104 pensioners in sums ranging from less than \$100 to \$500. About one-fifth of the disbursements of this fund went to absent pensioners.

Post fund. The principal revenues accruing to this fund are derived from sales at the Home store and beer hall, which amounted to \$29,344.12 during the past year. The expenditures for stock at these places were \$19,008.44, showing a gross profit of \$10,335.68. The consumption at the beer hall averaged about one-half pint per man per day, which is less than at most of the other Branches. The canteen building should be made more attractive; and the Home store, too, could be improved and a more general line of salable articles kept. The post fund is disbursed in the interest of the members for amusements, improvements, salaries, and other purposes. It gives employment to about twenty-five men, which is slightly over 1½ per cent of the average membership. Among the improvements partly paid for from this fund is the Ward Memorial Hall, which was nearing completion and is intended primarily for amusements.

SUPPLY DEPARTMENT.

Barracks. There are eight barracks at this Branch, all frames, with broad verandas, and two stories and attic in height. The latter are unfinished in all but two sets of barracks. An estimate has been submitted for finishing these attics for dormitory purposes, though all are occupied, whether finished or not. All the barracks have basements, but only four are used for storage purposes; the others are not used. These buildings were originally intended to hold 100 men each, but averaged at date of inspection about 165, and had 94 vacant beds; and the floor space per man, generally, is reported higher here than at other Branches. The barracks are heated by steam, indirect radiation, and lighted by incandescent lamps, for which the current is supplied from the power house.

Ventilation seems to be satisfactory, being of places and registers in floors and near ceiling provided with sufficient bathing and toilet facilities, tub for every 60, one closet for every 68, and men.

There are no storehouses at t
Supplies. are stored in basements, which capacity and in good condition. Ventilation and light were reported poor, but tion of articles on account of storage. The i received during the year was \$15,704.20 from \$120,700.19 by purchase. Returns of this pro are not made, except in the case of that re depot made quarterly to the general treasure however, are taken annually, and a personal v articles of property is made monthly by the q plete tour of all the shops, barracks, etc., e furniture of the Home is not all marked, but t erty, and the quartermaster has a memorandum and others for property continuously in their erty is received it is taken upon the prop inspection, and thereafter issued on requi governor. Lost and destroyed property is acc of a board of survey, and unserviceable pro acted upon by the inspector-general of the Hc

In the matter of clothing the quartermas whether it is in use or not, until it is condem board of survey. The following is a statement bility for the year:

On hand July 1, 1897
Received during the year

Total to be accounted for
Condemned

On hand July 1, 1898

Which includes the value of clothing issued to members, whether they are present at the I without leave. Members going on furlough a clothing in their possession, unless permitted l portion with them. If there should be a sho matter is submitted for the action of a board is issued to members on furlough, except up order.

Beds, bedding, and lockers were generally in bedsteads are reported to be 30½ inches in wid

Unserviceable property is condemned and original value of property condemned during and \$753.07 was received from its sales. Wo rags, except the buttons, which are cut off and depot, where they are used again in the r Apparent discrepancies in the clothing accoun to a want of proper returns from the hospita lack of full accountability, the discrepancies c that source.

The following is the bill of fare furnished for the week ending June 25, 1898:

Food.

Sunday.—Breakfast: Fried bacon, potatoes, bread, coffee, butter. Dinner: Roast beef with brown gravy, or roast pork with plums, apple or peach butter, potatoes, celery, bread, pickles, tea, apple pie. Supper: Rusk loaves, bologna, butter, tea.

Monday.—Breakfast: Beef stew, bread, coffee. Dinner: Boiled mutton, potatoes, stewed tomatoes, pickles, bread, butter, tea. Supper: Head cheese or mush, hot biscuits, butter, tea.

Tuesday.—Breakfast: Hash (meat, potatoes), bread, butter, coffee. Dinner: Wiener-wurst and kraut, potatoes, stewed onions, lima beans, bread, pickles, tea. Supper: Baked beans, bread, butter, tea.

Wednesday.—Breakfast: Fried sausage, potatoes, coffee, bread, butter. Dinner: Boiled beef, cabbage, parsnips, pickles, bread, butter, tea. Supper: Rice, sirup, buns, butter, tea.

Thursday.—Breakfast: Beef stew, coffee, bread. Dinner: Vegetable soup, pork and beans, or boiled mutton, carrots, mashed potatoes, pink beans, bread, pickles, tea. Supper: Bread duff, bread, butter, tea.

Friday.—Breakfast: Beef or mutton stew, coffee, bread. Dinner: Baked or fried fish, potatoes, bread, butter, pickles, catsup, butter beans, tea. Supper: Coffee cake, bread, butter, tea.

Saturday.—Breakfast: Hash, bread, butter, coffee. Dinner: Shoulder and cabbage or kraut, stewed tomatoes, potatoes, bread, pickles, tea. Supper: Stewed peaches, bread, butter, tea.

Changes are made weekly in the general-mess-hall bill of fare; the hospital bill of fare is prescribed by the surgeon. It requires about 22 men in the kitchen and 4 in the dining hall, and an additional detail of about 76 men as waiters, helpers, etc., for the preparation and serving of the food. The kitchen was in fair condition, and the dining hall was undergoing repairs at date of inspection. Both these places are inspected nearly every day by the governor and commissary of subsistence, and at irregular intervals by the surgeon. Facilities for receiving meats are reported inadequate, and all the tables have to be set twice, and some of them three times, for each meal.

Swill and garbage, which amount to about 18,000 pounds per month, are fed to the stock on the farm. None of the members received outdoor relief in subsistence or other allowances.

Clothing and bedding are collected weekly by room orderlies, counted and hauled to the laundry, and after being washed, returned to the companies and distributed.

There is no limitation as to how much a member may send, but private clothing is not washed at the laundry. The laundry list indicated about 3.6 shirts, 3.5 pairs drawers, 0.8 pairs sock, 4.6 sheets and pillowcases, and 0.8 hand and 1.7 roller towels per man per month. To do the laundry work required the services of 12 men, including soapmakers, and an expenditure of \$2,438.70 for labor and material.

The chief engineer of the Home has general charge of the shops, construction, machinery, plumbing, repairs, etc., and employed during the past year about 32 men, of whom 9 were civilians.

The water supply, which has given much trouble at this Branch, is now reported very satisfactory. The West Los Angeles Water Company supplies daily 500,000 gallons of water, and 20,000 more can be obtained from Mandeville Canyon.

The sewerage system consists of four separate lines of 6-inch vitrified sewer pipe; one takes the sewage from the main kitchen, one from eight barracks, one from the hospital, and one from residences of officers and other buildings. The terminals of these sewers are concentrated and empty upon a sandy and gravelly piece of land. The

Engineer department.

sewage has been used for irrigation in the vegetable garden. There is practically no system of drainage. Drains have been laid to carry the water from roofs to a central sewerage building. Both drainage and sewerage could be improved.

The steam plant consists of five 50-horsepower boilers, one 100-horsepower and one 200-horsepower tube boilers, used for heating buildings and for producing steam for kitchens, laundry, electric-light plant, and for two smaller boilers of 25 and 40 horsepower, respectively. The plant cost, approximately, \$12,425, and was completed last year at an expenditure of \$23,237.85.

The electric-light plant, which furnishes light for the hospital, consists of one 55-kilowatts dynamo and one 25-kilowatts dynamo, and gives a current for 12 arc lights. It cost \$10,500, and was operated during the past year at an expenditure of \$5,257.64, or about \$3.86 per light. The steam plant is in the power house, which is on the grounds.*

The ice and cold-storage plant is of the ammonia type, with ammonia compressor, ice tank, four cooling pumps, pipe coils, and condenser. It cools about 1,200 pounds of ice daily per ton.

Protection against fire was required, but inadequate, consisting of fire extinguishers, grenades, and fire buckets, and about 125 men, composed of a local organization of civilian employees. The inflammable nature of the hospital Branch requires specially good fire protection during the past year.

MEDICAL DEPARTMENT

The hospital is a two-story and attic frame, with an administration building, with a north and south wing, a dining hall, and two lavatories, all connected by a corridor. It has room for 146 patients without crowding a larger number. The convalescents occupy one wing, No. 7 and part of the attic in the north wing. The other available attic space is mostly used by the nurses. The basements are used principally for storage. A portion of the basement of the south wing, used for "sick call." Ventilation seems to be satisfactory. Facilities seem to be inadequate, and the need for improvement has been reported. Increased hospital room also has been reported.

The average number of sick during the year was 23 in convalescent company, and 6 at the hospital. The number of patients treated was 2,649, with an average of 11.5 days for each case. The principal acute diseases were gastritis, bronchitis, enteritis, and pneumonia. Chronic diseases, general debility, heart trouble, gastritis, tuberculosis, and hemiplegia. No contagious diseases reported.

*A new dynamo seems to be required for additional power. The present one is alleged to be sufficient, but another engine of about 100-horsepower in connection with the dynamo, and thus equipped it is fully meet the demand.

There were 25 members showing indications of disordered minds during the year, of whom five were considered permanently insane and sent to the Southern California State Asylum for the Insane. Facilities to care for the insane are inadequate, but all those requiring close confinement or restraint are at once committed to an asylum. Ten members were totally blind, and 11 had impaired eyesight, rendering them unable to read. They are given whatever assistance they may need by the nurses in their wards, and one member is employed to read to them daily in the forenoon.

There were 101 deaths during the year among the members, of which 16 occurred outside of the Home, giving a death rate of 48.4 per 1,000 of the average present and absent. Ninety-seven of these died of natural causes, one committed suicide, and the death of three resulted from accidents. Their average age was 63.49 years. About 86 per cent of the deceased members were buried at the Home cemetery at a cost of \$13.40 per funeral. The coffin is made at Los Angeles at a cost of \$5.95. No allowance is made for funeral expenses of members dying outside of the Home.

The number of hospital employees of all kinds averaged 73, of whom 10 were civilians, which gives about one employee to every three patients of the average daily number of sick.

The increasing responsibilities thrown upon the head nurse of this Branch in matters that require no professional skill, but are duties that more properly pertain to that of a matron, suggests the advisability of the employment of a matron here in the interests of the better administration of the hospital department, as at the majority of the other Branches.

The expenditures for medicines amounted to \$3,225.07, which is the lowest, next to the Northwestern Branch, reported by any of the Branch Homes. The medicines mostly used during the year were antipyrine, cascara, quinine, potassium bromide, and iodide, phenacetin, opium, strychnine, and pepsin.

NO. 8.—GENERAL DEPOT.

This depot is located at the Central Branch and is efficiently managed. It has charge of the manufacture of blank forms, bedding, uniform clothing and underwear, and the purchase of tableware, for distribution to the several Branch Homes, and occupies the basement, second floor, and attic of the large property building for manufacturing purposes and storage, also part of the cellar under Company No. 19 for crockery. It employs about 260 persons, of whom 39 receive a regular salary, amounting in all to \$8,352.94 for the year; and 221, of whom 74 are members and 147 civilians, are employed on piecework in the manufacture of bedding, uniform clothing, and underwear. Their compensation ranged from 2 cents for a pillowcase to \$1 for making a dress or greatcoat, and amounted to \$43,347.11 for the year. The rates paid to members for piecework was lower than those paid to civilians. Purchases and contracts for the depot are made by the general treasurer, who is located at Hartford. All goods purchased are inspected before acceptance as to measure, weight, strength, and color, according to specifications, and again after manufacture as to their being well and neatly made.

The stock of material on hand was reported as low, owing to the delay heretofore referred to in completing the contracts; and to this is probably due the delay experienced by the Branch Homes in having

their requisitions filled for needed clothing and other supplies now furnished, no longer direct, but through this depot. There may be a possible economy in this depot system of distribution of manufactured articles, such as bedsteads, crockery, caps, and shoes, but it appears to be more than absorbed in the extra cost of freight and handling at the depot, for which there is no specific appropriation made; and it further appears that the appropriations of some of the Branch Homes are charged with the cost of articles never received by them. Possibly the limitations placed by law upon these, as upon all other public disbursements, may be irksome and not in accord with conceived advantages due to centralization by the consolidation of the appropriations and of disbursements from one point; but as Congress has clearly indicated its policy in another direction, should it not be the aim of all to endeavor to conform to that policy?

It was reported that about two quarters' supply of crockery was on hand, and at least one quarter's supply of stationery.

The cost of material furnished for fabrication to the several shops, the amount paid for services in each, and the cost of the articles fabricated, were reported as follows:

Shop.	Cost of material.	Paid for services.	Cost of fabricated articles.
Tailor.....	\$84, 884. 81	\$35, 091. 87	\$121, 038. 69
Underwear and bedding	25, 048. 79	8, 352. 46	34, 157. 63
Knitting	8, 839. 51	4, 258. 15	13, 448. 00
Suspender	2, 291. 49	159. 58	2, 444. 37
Printing	1, 484. 93	639. 25	2, 287. 87
Total	122, 457. 53	48, 501. 31	173, 376. 76

Clippings are carefully gathered and sorted and finally sold. The following table shows the amount of each kind sold and prices obtained:

Kind of clipping.	Amount sold.	Price.	Receipt.
	<i>Pounds.</i>	<i>Pound.</i>	
Dark blue.....	5, 276	\$0. 17	\$896. 92
Sky blue	3, 484	. 18	627. 12
Aberdeen and red flannel	689	. 09	62. 01
List.....	928	. 09	83. 24
White cotton	9, 620	. 03½	312. 65
Mixed.....	3, 248	. 02½	73. 03
Blue and white wool yarn.....	299	. 12	35. 88
Total	23, 540	.....	2, 090. 95

There was some complaint at the Branch Homes about the inferior quality of the stockings furnished, while the shoes appeared to be of a better quality as to material and shape than those previously furnished. The need of another size of trousers more proportionate to the wants of many of the men was referred to, and it was stated that a new size, to be known as No. 5½, 38 inches waist and 32 inches seam, would be hereafter furnished on requisition.

For summer wear, especially in the Branch Homes in the more southern latitudes, an unlined or lighter blouse than that worn the year round, or a substitute for it, is believed would add much to the comfort of the men and with economy to the Home.

Quite recently a circular governing the issue and care of uniform

clothing has been promulgated to supersede the regulations of April 30, 1883, heretofore in force. It is as follows:

[Circular.]

HARTFORD, CONN., *December 17, 1898.*

Regulations to govern the issue of clothing to members of the Home, dated 30th April, 1883, are hereby amended to read as follows:

1. The clothing is the property of the Home and no issue shall be construed as a surrender of the right of the Home to control at all times such clothing. It will be issued free to all members of the Home, and will be of Home standard, pattern, and quality, not to be altered, except by order of the president of the Board of Managers.

2. Clothing shall consist of: Cap, hat, greatcoat, dress coat, blouse, vest, trousers, shoes, knit-wool shirts, canton-flannel drawers, woolen socks, white cotton gloves, and suspenders.

3. The allowance on admission shall be: One hat, 1 greatcoat if between 1st of October and 1st of April; 1 blouse, 1 pair trousers, 1 pair shoes, 2 knit-wool shirts, 2 pairs canton-flannel drawers, 2 pairs woolen socks, and 1 pair suspenders. Three months thereafter: One cap, 1 greatcoat if not previously issued; 1 dress coat, 1 vest, 1 pair trousers, 1 pair shoes, 1 knit-wool shirt, 1 pair canton-flannel drawers, 2 pairs woolen socks, and 1 pair white cotton gloves. The allowance thereafter will be such as may be required to replace articles actually worn-out. A time limit for the use of clothing will no longer be recognized, and all clothing shall be issued and reissued until worn-out.

4. Issues shall be made weekly in exchange for articles worn-out or satisfactorily accounted for to the governor. Any member of the Home failing to produce or satisfactorily account for any article shall pay to the Home its value at the time of issue either in money or labor, and shall suffer such other reasonable punishment as may be directed by the governor. If a member sell, or in any other way dispose of the clothing issued to him or to any other member of the Home, he shall be reported to the president of the Board of Managers for dishonorable discharge.

5. To members of the Home "present sick" such articles of clothing as the surgeon deems necessary shall be issued, such issues to be made upon his requisition, approved by the governor, provided that extra issues when no longer required shall be turned into the quartermaster's storeroom, thoroughly renovated and reissued.

6. The clothing statement of members transferred shall be forwarded with the order transferring them, and no clothing shall be issued until such statement is received.

7. Clothing of members furloughed shall be turned into the quartermaster's storeroom before leaving the Branch. All such clothing shall be fumigated, cleaned, and repaired, and if not called for by the furloughed member within three months shall be taken up and reissued to readmitted members and members returning from absence of more than three months. Members furloughed or discharged shall, when necessity demands it, be allowed to retain such articles as they may require.

8. Weekly inspections shall be of the most rigid character, and every article of clothing shall be examined with a view to detecting damage, dirt, or loss. The inspectors-general are instructed to give this subject careful attention, and to condemn no clothing unless worn out, and to report every dereliction on the part of responsible officers.

9. These regulations enable the members, except those "present sick," to have at all times 1 cap, 1 hat, 1 greatcoat, 1 dress coat, 1 blouse, 1 vest, 2 pairs trousers, 2 pairs shoes, 3 knit-wool shirts, 3 pairs canton-flannel drawers, 4 pairs woolen socks, 1 pair white cotton gloves, and 1 pair suspenders. With proper care from officers and noncommissioned officers this allowance should keep the members well and comfortably clothed.

W. B. FRANKLIN,

President Board of Managers, National Home for Disabled Volunteer Soldiers.

That the quality of the crockery furnished the Home is of an inferior grade is probably true, but doubtless the question has been decided by those in authority that, in view of the large percentage of breakage, it is cheaper to break an inferior grade than a better one. On the other hand would not a better grade have a longer life and secure from those who handle it greater care. The price paid for that used in the Regular Army is almost three times as much, but the percentage allowed for breakage, which is seldom reached, is more than proportionately less.

The exhibits appended give in detail the transactions at the depot during the year, showing the prices paid for piecework; the amount of material and articles on hand, and fabricated and expended during the year; cost of material and of manufacture; amount and value of articles sent to Branch Homes and sold to State Homes, and the average quantity of goods and old material used in the manufacture of the various articles.

EXHIBIT A.—*Rates paid for each class of piecework, fiscal year ending June 30, 1898.*

Articles.	To mem- bers.	To civil- ians.
Aprons, white	each ..	\$0.05
Blouses	do. ..	.50
Caps, white	do. ..	.05
Coats, dress	do. ..	1.00
Coats, great	do. ..	1.00
Drawers, canton flannel	per pair ..	.15
Drawers, red flannel	do. ..	.25
Gowns, hospital	each ..	.50
Jackets, white	do. ..	.30
Mattresses, barrack (tufting and finishing)	do. ..	.05
Mattresses, hospital (tufting and finishing)	do. ..	.07
Overalls	per dozen ..	1.25
Pad covers, barrack	per pair ..	.104
Pad covers, hospital	each ..	.04
Pillowcases, barrack and hospital	do. ..	.05
Sheets, barrack and hospital	do. ..	.02
Shirts, cotton, domett flannel and red flannel	do. ..	.08
Socks	per dozen pairs ..	.25
Trousers	do. ..	.60
Vests	per pair ..	.30
	each ..	.45
		.50

EXHIBIT B.—*Statement of machines, tools, etc., on hand July 1, 1897, purchased, transferred, and expended, and remaining on hand June 30, 1898.*

Articles.	On hand July 1, 1897.	Pur- chased.	Ex- pended.	On hand June 30, 1898.
Belting	\$5,298.74			\$5,298.74
Braces, brass		\$16.12		16.12
Brushes, glue .....		.95		.95
Curtains, window		1.20		1.20
Engine, gas		19.00		19.00
Eraser, steel		662.53		662.53
Files .....		.40		.40
Galleys, brass .....		.90		.90
Hangers for shafting		3.15		3.15
Leaders, brass		8.25		8.25
Machine parts		4.24		4.24
Needles		119.91		119.91
Pins, gauge		59.50		59.50
Pot, glue .....		.40		.40
Rule, brass .....		.90		.90
Stencils		2.12		2.12
Stick, composing		6.95		6.95
Stone, foundation for engine		1.40		1.40
Type, assorted		20.00		20.00
Typing rollers		27.10		27.10
Freight and express charges		16.20	\$16.20	
Grinding shears		4.35	4.35	
Labor, removing engine		6.50	6.50	
Renewals of battery		25.59	25.59	
		36.00	36.00	
Total	5,298.74	1,043.66	88.64	6,253.76
Type transferred to Central Branch				523.01
On hand June 30, 1898				5,730.75

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1181

EXHIBIT C.—*Statement showing amount and value of each class of goods and articles on hand June 30, 1897, purchased, fabricated, transferred and sold, expended, and on hand June 30, 1898.*

"First head."

Articles.	On hand June 30, 1897.		Purchased.		Fabricated.	
	No.	Value.	No.	Value.	No.	Value.
Blank forms	186,946	\$909.81	3,950	\$88.09	292,935	\$1,025.85
Books	106	90.60	1,201	1,693.80		
Envelopes	238,615	376.79	359,550	991.51	330,665	999.03
Paper, reams	95	325.14	360	1,340.90		
Paper, sheets	74,383	132.66			656,310	1,150.11
Card boards and cards	200	4.95	31,000	60.50		
Miscellaneous	500	3.65	637	135.58	67,030	196.66
Total	500,845	1,843.60	396,698	4,310.38	1,346,940	3,371.65

Articles.	Transferred and sold.		Expended.		On hand June 30, 1898.	
	No.	Value.	No.	Value.	No.	Value.
Blank forms	315,477	\$1,225.66	138	\$79.80	168,221	\$718.29
Books	972	1,882.13			335	403.67
Envelopes	372,330	972.50	330,665	836.80	225,835	558.53
Paper, reams			395½	1,460.88	59½	205.16
Paper, sheets	587,380	1,011.33	32,837	75.86	110,476	195.59
Card boards and cards			26,107	57.44	5,093	8.01
Miscellaneous	67,030	196.66	834½	135.51	302½	3.72
Total	1,343,189	4,788.28	390,971½	2,645.78	510,322½	2,092.97

EXHIBIT D.—*Statement of articles on hand July 1, 1897, fabricated and transferred during the year and remaining on hand June 30, 1898.*

Articles.	On hand July 1, 1897.		Fabricated.		Transferred and sold.		On hand June 30, 1898.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Aprons, white, sub., number			3,148	\$535.16	950	\$161.50	2,198	\$373.66
Aprons, white, hospital, number			814	138.38			814	138.38
Blouses..... number..	4,351	\$8,329.12	21,190	40,564.01	400	842.29	7,607	14,562.07
Caps, white, sub. do.			1,864	186.40	17,534	33,565.34		
Caps, white, hospital, number			342	34.20	850	85.00	1,014	101.40
Chevrons, corpl. pairs..	20	7.00					342	34.20
Chevrons, first sergt., pairs	10	5.00					20	7.00
Chevrons, quartermaster-sergt. pairs	3	1.80					10	5.00
Coats, dress..... number..	908	3,212.32	4,209	14,890.64	1	3.89	3	1.80
Coats, great do.	66	243.88	2,207	8,493.40	4,930	17,441.40	186	658.02
Drawers, c. f. pairs..	10,154	3,669.66	27,829	10,057.42	2,273	8,737.28		
Drawers, r. f. do.	1,029	951.21	23	21.26	28,547	10,316.92	9,436	3,410.16
Jackets, white, sub., number			2,085	1,355.25	190	175.64	862	796.83
Jackets, white, hospital, number			660	429.00	470	305.50	1,615	1,049.75
Mattresses, barrack, number	549	1,859.41	1,500	5,080.35			660	429.00
Mattresses, hospital, number	399	2,250.20	500	2,819.80	1,750	5,927.09	299	1,012.67
Mattress covers, barrack, number			663	358.02			619	3,490.92
Overalls..... pairs..	410	182.04	684	303.70	663	358.02		
Pillowcases, barrack, number	20,421	1,890.59	18,015	1,533.07	936	415.58	158	70.16
Pillowcases, hospital, number	9,195	850.54	456	42.18	9,100	927.16	29,336	2,496.50
Sheets, barrack, number	10,213	2,969.94	30,513	8,873.19	3,275	302.95	6,376	589.77
Sheets, hospital, number	5,907	2,118.25	3,778	1,354.80	13,800	4,013.04	26,926	7,830.99
					4,550	1,631.63	5,135	1,841.42

EXHIBIT D.—Statement of articles on hand July 1, 1897, etc.—Continued.

Articles.	On hand July 1, 1897.		Fabricated.		Transferred and sold.		On hand June 30, 1898.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Shirts, cotton .. number..	1,062	\$496.48	2,118	\$990.20	2,034	\$950.93	1,146	\$535.75
Shirts, d. f. do.....	44	47.63	328	452.64	44	47.63	328	452.64
Shirts r. f. do.....	582	602.77	204	211.29	70	72.50	716	741.56
Socks dozen pairs..	486	905.71	6,534 ¹	12,177.67	4,384 ¹	8,171.55	2,636	4,912.45
Stripes pairs.....	1	.30	200	59.33	197	58.45	4	1.18
Suspenders do.....	4,246	631.80	15,852	2,358.76	14,567	2,167.54	5,546	825.25
Trousers do.....	5,631	9,269.75	20,843	33,488.67	580	1,050.28	3,442	5,608.23
Vests do.....	4,005	4,697.06	18,268	21,424.72	400	516.04	7,556	8,861.06
					14,317	16,790.98		
Less profit on sale		45,192.46		168,236.36		152,752.61		60,896.53
						219.32		
Plus appraisement		45,192.46		168,236.36		152,533.29		60,896.53
								458.06
Actual value on hand June 30, 1898.....								61,351.19

In the yearly report of the Board of Managers the one-third dozen pairs of socks, 62 cents, appears as a purchase.

EXHIBIT E.—Statement of material on hand July 1, 1897, purchased, expended, and transferred during the year, and remaining on hand June 30, 1898.

Articles.	On hand July 1, 1897.		Purchased.		Expended and transferred.		On hand June 30, 1898.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Batting, cotton .. pounds..	5	\$0.55	10	\$1.50	11	\$1.45	4	\$0.60
Binding gross.....			50	37.50	50	37.50		
Buckles, suspender, double, gross.....			121	223.85	108	199.80	13	24.05
Buckles, vest..... gross.....	52	6.50	100	8.28	122	12.39	30	2.30
Buckram yards.....	1,648	162.74	13,008	818.02	11,834 ¹	799.37	2,821 ¹	181.30
Buttons, coat gross.....	59	218.30	337 ¹	1,249.50	164 ¹	607.73	232	890.67
Buttons, drawer .. dozen.....	2,616	31.80	6,336	57.20	4,068	44.91	4,884	44.00
Buttons, fly gross.....	237	11.85	780	20.48	582	20.91	435	11.43
Buttons, shirt dozen.....	1,599	2.94	720	1.13	1,467	2.70	852	1.37
Buttons, suspender, gross.....	477	38.16	1,212	34.84	985	52.76	704	20.24
Buttons, vest..... gross.....	2	3.70	460	855.32	373	693.56	80	165.46
Canvas, French .. yards.....	3,888 ⁴	486.06	1,650	147.68	3,497	437.12	2,041 ⁴	196.62
Cloth, d. b., 20-os. do.....	287	357.32	7,768 ⁷	9,266.91	354 ¹	42.29		
Cloth, d. b., 16-os. do.....	4,622 ³	5,180.62	3,490 ⁴	3,612.66	6,404 ³	7,656.26		
Cloth, white do.....	7 ¹	25.74	10	33.75	6,378 ⁷	6,998.59	1,734	1,794.00
Denim do.....	1,911 ⁴	229.38			17 ¹	59.49		
Drill, black do.....	1,591	127.28	1,328 ³	78.04	1,911 ⁴	229.38		
Drill, unbleached .. do.....	13,774	826.44	51,725 ⁴	2,451.78	2,127	158.78	792 ⁷	48.54
Duck do.....	59 ⁴	8.33			44,341 ⁴	2,275.33	21,158	1,002.09
Duck, cotton do.....			8,000	880.00			59 ⁴	8.33
Eyelets M.....	25	5.50	55	12.10	6,862	754.82	1,138	126.18
Fillings, mattress, bar-rack .. number.....					66	14.52	14	3.06
Fillings, mattress, hospital .. pounds.....			1,500	4,200.00				
Flannel, canton .. yards.....	45,088	3,354.55	12,018	2,433.64	12,018	2,433.64		
Flannel, coat lining .. do.....	7,126 ⁴	1,745.99	55,001	3,811.56	68,365	4,967.64	31,724	2,196.47
Flannel, d. b., 11 ¹ -os. do.....	10,697 ⁴	7,474.96	11,411	2,224.01	12,484 ⁴	2,790.32	6,052 ³	1,179.06
Flannel, domest. do.....			25,100 ⁴	19,327.19	32,149 ⁴	23,992.90	3,648 ³	2,808.25
Flannel, red do.....	1,933 ⁴	465.78	8,260	2,808.39	1,063 ⁴	361.58	7,196 ⁴	2,446.81
Hooks and eyes .. dozen.....			24	.60	815	196.34		
Interlining yards.....	2,472	61.80	9,900	118.80	24	.60		
Jeans, Kentucky .. do.....	8,393	797.34	31,295 ⁴	2,177.01	7,824	126.03	4,548	54.57
Kersey, s. b., 22-os. do.....	6,029 ¹	5,637.24	25,062 ³	26,754.02	35,361	2,641.13	4,327 ⁴	333.23
Muslin, bleached .. do.....	1,894	142.05	17,330	1,138.88	38	40.57		
Muslin, bleached, Lang-don's yards.....			5,015	363.08	30,142	31,377.66	911 ⁴	973.63
					15,145 ³	966.83	4,078 ⁴	294.19

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EXHIBIT E.—Statement of material on hand July 1, 1897, etc.—Continued.

Articles.	On hand July 1, 1897.		Purchased.		Expended and transferred.		On hand June 30, 1898.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Rings, button . . . per 100..	2	\$0. 24					2	\$0. 24
Rings, suspender, gross..	10 ¹⁰	1. 68	242	\$38. 72	225 ¹⁰	\$36. 08	27	4. 32
Sheeting, 1-cotton, yards..			15, 000	709. 50	15, 000	709. 50		
Sheeting, 1-cotton, do.	29, 098	2, 931. 21	49, 939	4, 634. 34	79, 637	7, 565. 55		
Sheeting, 1-cotton, do.			9, 932	1, 021. 00	9, 932	1, 021. 00		
Shirting, 1-cotton, do.	19, 392 ⁴	1, 184. 57			6, 698 ⁴	434. 75	12, 693 ⁴	749. 82
Silk twist pounds..	19	114. 00	71	279. 74	59	271. 60	31	122. 14
Silesia yards..	2, 590 ²	205. 93	11, 906 ²	678. 93	11, 529 ⁴	705. 63	2, 967 ²	179. 28
Straps, suspender, double, pairs..	850	15. 75	16, 500	742. 50	15, 975	718. 87	875	39. 28
Tape dozen..	80	14. 40	385	60. 64	371	60. 23	94	14. 81
Thread, black cotton, dozen..	625	228. 75	2, 530	1, 037. 56	2, 302	916. 49	853	349. 82
Thread, white cotton, O. N. T. dozen..	361	132. 13	970	397. 77	979	385. 55	352	144. 35
Do do.	155	66. 65	110	41. 42	180	76. 06	85	32. 01
Thread, linen do.	156	124. 16	770	557. 25	620	469. 96	306	221. 45
Thread, linen pounds..	46	89. 70	110	126. 50	116	170. 20	40	46. 00
Ticking, barrack, yards..	26	3. 06	11, 063 ⁴	1, 109. 55	9, 531 ⁴	954. 63	1, 560 ²	157. 98
Ticking, hospital, do.			2, 400 ²	354. 04	2, 400 ²	354. 04		
Twine, tufting, pounds..			15	7. 50	15	7. 50		
Wadding dozen..	271	78. 59	990	219. 45	1, 007	241. 74	254	56. 30
Webbing yards..	900	38. 25	26, 526 ⁴	1, 148. 68	26, 426 ⁴	1, 186. 93		
Wigan do.	2, 487 ²	186. 55	4, 029	209. 28	5, 591 ⁴	343. 66	924 ⁴	47. 17
Yarn, blue wool, pounds..	3, 095	1, 063. 25	17, 688	7, 053. 09	19, 502	7, 625. 54	1, 281	510. 80
Yarn, white wool, do.	1, 525	526. 12	2, 185	871. 28	3, 250	1, 213. 97	460	183. 43
Miscellaneous				361. 93		361. 93		
Total		34, 437. 91		106, 808. 39		121, 417. 39		19, 828. 91

EXHIBIT F.—Estimated cost of the material and cost of the fabrication of each article manufactured during fiscal year ending June 30, 1898.

Articles.	Material.	Cutting and making.	Total.
Aprons, white, subsistence and hospital.	\$0. 0991	\$0. 0649	\$0. 1640
Blouses	1. 3357	. 5731	1. 9088
Caps, white, subsistence and hospital. ....	. 0247	. 0662	. 0909
Coats, dress	2. 6480	. 9851	3. 6331
Coats, great	3. 0687	1. 0408	4. 1095
Drawers, canton flannel . . . . .	. 1793	. 1718	. 3511
Drawers, red flannel . . . . .	. 7491	. 2718	1. 0209
Jackets, white, subsistence and hospital. ....	. 2999	. 3261	. 5960
Mattress, barrack	3. 2423	. 1073	3. 3496
Mattress, hospital	5. 5945	. 1382	5. 7327
Mattress covers, barrack, including tufting and finishing . . . . .	. 4487	. 1073	. 5560
Overalls . . . . .	. 3343	. 1297	. 4640
Pillowcases, barrack . . . . .	. 0406	. 0349	. 0815
Pillowcases, hospital . . . . .	. 1042	. 0349	. 1391
Sheets, barrack . . . . .	. 2457	. 0456	. 2918
Sheets, hospital . . . . .	. 2606	. 0456	. 3062
Shirts, cotton . . . . .	. 2073	. 2706	. 4839
Shirts, domett flannel	1. 1118	. 2706	1. 3884
Shirts, red flannel . . . . .	. 8885	. 2706	1. 1651
Socks . . . . .	. 1123	. 0592	. 1715
Stripes . . . . .	. 2974		. 2974
Suspenders . . . . .	. 1389	. 0153	. 1542
Trousers	1. 3195	. 4290	1. 7485
Vests . . . . .	. 5482	. 5795	1. 1277

EXHIBIT G.—Amount and value of fabricated articles sent to each Branch Home during the year ending June 30, 1898.

Branch.	Blank forms.		Envelopes.		Paper.		Miscellaneous.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Southern	45, 138	\$153. 47	38, 650	\$120. 68	67, 520	\$113. 71	111	\$11. 06
Western	37, 302	128. 97	33, 500	117. 90	71, 980	130. 90	110	11. 55
Marion	34, 139	124. 16	44, 115	106. 75	83, 240	144. 55	93	9. 76
Pacific	27, 024	120. 55	52, 500	125. 85	65, 700	118. 88	85	8. 93
Central	76, 151	243. 44	118, 500	254. 05	189, 180	320. 21	238	24. 90
Northwestern	36, 283	129. 22	33, 250	45. 24	63, 680	105. 14	119	12. 49
Eastern	38, 748	133. 32	29, 365	90. 11	42, 620	72. 13	94	9. 57
State Homes	294, 785	1, 043. 13	349, 680	860. 58	563, 980	1, 005. 52	850	89. 25
General treasurer	10, 665	53. 48						
	6, 922	43. 66	22, 450	111. 92	3, 400	5. 81	66, 180	107. 41
Total	312, 402	1, 140. 27	872, 830	972. 50	587, 380	1, 011. 33	67, 030	196. 06

EXHIBIT H.—Statement of amount and value of fabricated articles transferred to the several Branches, National Home for Disabled Volunteer Soldiers, during the fiscal year ending June 30, 1898.

Articles.	Central.		Northwestern.		Eastern.		Southern.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Aprons, white, sub., number					200	\$34. 00		
Blouses	4, 600	\$8, 805. 78	2, 280	\$4, 364. 60	1, 890	3, 618. 03	2, 930	\$5, 608. 90
Caps, white, sub. do	650	65. 00						
Coats, dress	1, 301	4, 802. 69	895	3, 166. 33	445	1, 574. 33	510	1, 804. 29
Coats, great	1, 631	6, 026. 72	100	369. 51	375	1, 385. 06		
Drawers, c. f. pairs	7, 595	2, 744. 83	3, 442	1, 243. 94	3, 175	1, 147. 46	4, 445	1, 608. 43
Drawers, r. f. do					116	107. 23		
Jackets, white, sub., number					50	32. 50		
Mattresses, barrack, number	900	3, 048. 21	150	508. 04	200	677. 38	300	1, 016. 07
Mattresses, hospital, number			65	366. 57	25	140. 99	100	563. 96
Mattress covers, barrack, number	663	358. 02						
Overalls	125	55. 50	180	79. 92	180	79. 92		
Pillowcases, barrack, number	2, 000	280. 11	900	76. 59	600	51. 06	1, 900	161. 69
Pillowcases, hospital, number	1, 200	111. 00	625	57. 82			900	83. 25
Sheets, barrack	4, 500	1, 308. 60	2, 000	581. 60	1, 100	319. 88	1, 500	436. 20
Sheets, hospital	2, 400	860. 64	700	251. 02			750	268. 95
Shirts, cotton	870	406. 74	27	12. 63	80	37. 41	375	175. 31
Shirts, d. f. do	44	47. 63						
Shirts, r. f. do					50	51. 79		
Socks	990	1, 862. 36	604	1, 125. 61	668	1, 244. 88	593	1, 106. 04
Suspenders	3, 650	543. 12	1, 600	238. 08	1, 684	250. 58	2, 496	371. 39
Stripes	50	14. 83	24	7. 12	28	8. 31	12	3. 56
Trousers	5, 665	9, 325. 73	2, 493	4, 103. 98	2, 815	4, 634. 05	3, 435	5, 654. 70
Veets	4, 470	5, 242. 42	1, 828	2, 143. 88	1, 900	2, 228. 32	1, 920	2, 251. 77
Total		45, 709. 93		18, 697. 24		17, 623. 78		21, 112. 51

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EXHIBIT H.—Statement of amount and value of fabricated articles transferred to the several Branches, etc.—Continued.

Articles.	Western Branch.		Pacific Branch.		Marion Branch.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.
Aprons, white, sub.....number..			350	\$59.50	400	\$68.00
Blouses.....do.....	2,460	\$4,709.18	1,325	2,538.45	2,049	3,922.40
Caps, white, sub.....do.....			200	20.00		
Coats, dress.....do.....	1,100	3,891.58	30	106.14	649	2,296.04
Coats, great.....do.....					187	955.39
Drawers, c. f.....pairs.....	3,950	1,427.53	2,625	948.69	3,315	1,198.04
Drawers, r. f.....do.....			24	22.19	50	46.22
Jackets, white, sub.....number..			150	97.50	270	175.50
Mattresses, barrack.....do.....			50	169.35	150	508.04
Mattresses, hospital.....do.....			90	507.56		
Overalls.....pairs.....	185	82.14	75	33.30	191	84.90
Pillowcases, barrack.....number..	1,400	119.14	500	73.15	1,800	165.42
Pillowcases, hospital.....do.....	400	37.00			150	13.88
Sheets, barrack.....do.....	1,950	567.06	1,100	319.58	1,650	479.82
Sheets, hospital.....do.....	600	215.16			100	35.86
Shirts, cotton.....do.....	125	58.44	72	33.66	485	226.74
Shirts, d. f.....do.....						
Shirts, r. f.....do.....			20	20.71		
Socks.....dozen pairs.....	649	1,209.47	322	618.71	539	1,004.48
Suspenders.....pairs.....	2,520	374.97	1,225	182.28	1,392	207.12
Stripes.....do.....	48	14.24	35	10.39		
Trousers.....do.....	3,440	5,662.93	1,475	2,428.15	2,629	4,327.86
Vests.....number.....	1,915	2,245.91	760	891.33	1,524	1,787.35
Total.....		20,614.75		9,078.94		17,502.96

RECAPITULATION.

Central Branch.....	\$45,709.93
Northwestern Branch.....	18,697.24
Eastern Branch.....	17,623.78
Southern Branch.....	21,112.51
Western Branch.....	20,614.75
Pacific Branch.....	9,078.94
Marion Branch.....	17,502.96
New York State Home.....	3.89
Connecticut State Home.....	2,408.61
Total.....	152,752.61

EXHIBIT I.—Number and value of manufactured articles received in general depot National Home for Disabled Volunteer Soldiers during the year ending June 30, 1898.

Articles.	Number.	Value.
Blank forms.....	3,950	\$88.09
Books.....	1,201	1,093.80

EXHIBIT J.—Statement of tableware on hand July 1, 1897, purchased and transferred during the year, and on hand June 30, 1898.

Articles.	On hand July 1, 1897.		Purchased.		Transferred.		On hand June 30, 1898.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Bottles, pepper.....			453	\$24.65	453	\$24.65		
Bottles, vinegar.....			847	127.25	847	127.25		
Bowls.....			45,101	2,702.47	16,200	947.11	28,901	\$1,755.36
Cups.....			2,215	96.74	743	31.83	1,472	64.91
Dishes, vegetable.....			11,246	2,019.49	2,440	436.70	8,806	1,582.79
Forks, table.....	408	\$40.80	12,000	1,920.00	2,520	378.73	9,888	1,582.08
Knives, table.....			12,000	2,020.00	3,612	608.02	8,388	1,411.98
Pitchers, sirup.....	1,002	201.24			516	103.02	486	97.02
Plates, bread.....			10,571	522.06	300	15.39	10,271	506.67
Plates, butter, individual.....			6,200	171.50	5,220	142.45	980	29.05
Plates, butter, 5-inch.....	1,528	37.57			1,528	37.57		
Plates, butter, 6-inch.....	902	21.53	8,541	262.61	2,702	72.66	6,741	211.48
Plates, cheese.....			9,131	352.15			9,131	352.15
Plates, dinner.....			41,580	2,225.63	7,180	383.80	34,400	1,841.83
Plates, soup.....			28,089	1,520.94	1,000	59.28	27,089	1,461.66
Platters, meat.....	10	2.09	4,619	1,081.12	1,578	364.93	3,051	718.28
Pots, mustard.....	2,982	181.40			124	7.54	2,858	173.86
Pans, bed.....	581	268.25					581	268.25
Saltcellars.....	280	16.91			86	2.10	154	14.81
Saucers.....			2,216	83.42	476	15.42	1,740	68.00
Spoon, dessert.....			12,000	2,571.59			12,000	2,571.59
Spoons, table.....	1,320	169.40			1,212	155.54	108	13.86
Spoons, tea.....	264	16.72	3,000	385.38	144	9.12	3,120	392.98
Total		955.91		18,087.00		3,923.70		15,119.21

EXHIBIT K.—Statement of articles not fabricated on hand July 1, 1897, purchased, taken up, transferred, and sold during the year, and remaining on hand June 30, 1898.

Articles.	On hand July 1, 1897.		Purchased and taken up.		Transferred and sold.		On hand June 30, 1898.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Blankets, g. w. number.....			3,855	\$10,177.20	400	\$1,056.00	3,455	\$9,121.20
Blankets, w. w. do.....	803	\$2,842.82	1,014	2,940.60	200	708.00	1,617	5,075.22
Bedsteads, barrack. do.....	4	12.96					4	12.96
Caps.....	601	277.96	a 8 10,700	2.85 3,543.85	1,915	713.17	9,394	3,111.20
Counterpanes, cotton, num- ber.....			1,677	1,320.47			1,677	1,320.47
Counterpanes, linen, num- ber.....			3,137	2,028.59	450	291.00	2,687	1,737.59
Gloves, white..... pairs.....			30,000	3,092.00	9,576	989.15	20,424	2,102.85
Hats, black..... number.....	5,555	6,166.05	a 1 10,000	.71 7,100.00	7,366	7,451.86	8,190	5,814.90
Hats, drab..... do.....	753	743.82	a 1 1,501	.71 1,065.71			2,255	1,810.24
Pillows, cotton..... do.....	2,401	2,713.13			680	768.40	1,721	1,944.73
Ponchos..... do.....	45	67.50					45	67.50
Shirts, k. w..... do.....	3,812	1,829.70	a 1 30,583	.47 14,403.05	19,515	9,234.90	14,881	6,998.38
Shoes..... pairs.....	915	1,208.07	a 4 19,993	5.28 26,390.76	b 1 15,494	1.45 20,452.35	5,417	7,150.44
Shoes, barrack..... do.....	700	556.50	a 2 1.59				702	558.00
Slippers..... do.....	979	532.97	2,001	1,100.55	b 1 425	.59 231.91	2,554	1,401.07
Shoulder straps, first lieu- tenant, pairs.....	39	74.10	75	142.50	31	58.90	83	157.70
Shoulder straps, captain, pairs.....			150	337.50	113	254.25	37	83.25
Less profit on sales.....		17,025.44		73,654.19		42,211.93		48,467.88
Total		17,025.44		73,654.19		42,211.75		48,467.88

a Taken up.

b Sold.

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EXHIBIT L.—Number and value of manufactured articles sent to each Branch during the year ending June 30, 1898.

Branch.	Blank forms.		Books.	
	Number.	Value	Number.	Value.
Southern	250	\$3.10	90	\$146.26
Western	725	25.29	128	191.18
Marion	550	6.82	144	231.44
Pacific	400	18.00	124	159.95
Central	600	18.84	156	292.86
Northwestern	100	1.24	79	206.74
Eastern	450	12.10	44	101.87
General treasurer	3, 075	85.39	765	1, 330.30
Total	3, 075	85.39	953	1, 366.67

EXHIBIT M.—Statement of tableware transferred to Branches National Home for Disabled Volunteer Soldiers during year ending June 30, 1898.

Articles.	Central Branch.		Northwestern Branch.		Eastern Branch.		Southern Branch.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Bottles, pepper	249	\$13.55			60	\$3.25	72	\$3.90
Bottles, vinegar	325	48.86	50	\$7.50	100	15.00		
Bowls	5, 000	286.11	1, 000	63.28	3, 500	202.58		
Cups	50	2.23	175	7.59				
Dishes, vegetable	1, 300	214.74			500	89.88		
Forks, table	238	36.00	1, 620	259.20	492	67.20	120	16.32
Knives, table	144	24.24	1, 620	272.70	900	151.50	168	28.28
Pitchers, sirup	100	20.08	100	20.08	100	20.08	48	9.64
Plates, butter, 5-inch	178	4.37	200	4.91				
Plates, butter, 6-inch	1, 922	53.72	300	7.16				
Plates, dinner							2, 880	149.34
Plates, soup					1, 000	59.28		
Platters, meat	600	138.00	50	11.50	100	23.00	240	55.88
Pots, mustard	50	3.04			50	3.04		
Saltcellars	36	2.10						
Saucers	50	1.95						
Spoons, table	288	36.96	204	26.18	252	32.34	84	10.78
Spoons, tea	144	9.12						
Total		895.07		680.10		666.65		274.14

Articles.	Western Branch.		Pacific Branch.		Marion Branch.	
	No.	Value.	No.	Value.	No.	Value.
Bottles, pepper	48	\$2.63	24	\$1.32		
Bottles, vinegar	24	3.62	96	14.41	252	\$37.86
Bowls	2, 800	170.70	2, 700	158.44	1, 200	56.00
Cups	230	9.97	144	6.02	144	6.02
Dishes, vegetable	250	45.00	250	44.38	240	43.20
Forks, table						
Knives, table			636	107.06	144	24.24
Pitchers, sirup	168	33.74				
Plates, bread			300	15.39		
Plates, butter, individual	5, 220	142.45				
Plates, butter, 5-inch	150	3.69	1, 000	24.60		
Plates, butter, 6-inch					480	11.78
Plates, dinner	2, 800	155.98	1, 500	78.48		
Platters, meat	200	47.14	388	89.41		
Pots, mustard			24	1.46		
Saucers	138	4.71	144	4.38	144	4.38
Spoons, table	288	36.96	96	12.32		
Total		656.50		557.67		193.48

EXHIBIT N.—Statement of amount and value of manufactured articles transferred to the several Branches National Home for Disabled Volunteer Soldiers during fiscal year ending June 30, 1898.

Articles.	Central Branch.		Northwestern Branch.		Eastern Branch.		Southern Branch.	
	Amt.	Value.	Amt.	Value.	Amt.	Value.	Amt.	Value.
Blankets, w. w number							200	\$708.00
Caps do			200	\$66.24			371	142.58
Gloves, white pairs			2,004	206.33	1,008	\$103.78	2,088	216.83
Hats, black number	2,450	\$2,519.50	1,100	1,101.00	650	634.70	1,520	1,509.00
Pillows, cotton do	200	226.00			100	113.00	200	226.00
Shirts, k. w do	2,490	1,173.97	1,720	813.98	2,385	1,130.34	3,600	1,701.06
Shoes pairs	2,925	3,861.02	900	1,188.00	2,304	3,041.28	3,150	4,158.00
Slippers do	25	13.71	175	95.58	130	70.90		
Shoulder straps, first lieutenant pairs			5	9.50			4	7.00
Shoulder straps, captain, pairs	30	67.50	17	38.25			9	30.25
Total		7,861.70		3,518.88		5,094.00		8,689.93

Articles.	Western Branch.		Pacific Branch.		Marion Branch.	
	Amount.	Value.	Amount.	Value.	Amount.	Value.
Blankets, g. w number					400	\$1,056.00
Caps do	144	\$47.69	108	\$35.77	1,082	420.89
Counterpanes, linen do	150	97.00			300	194.00
Gloves, white pairs			3,276	338.66	1,200	123.55
Hats, black number	700	737.00			946	950.08
Pillows, cotton do			30	33.90	150	169.50
Shirts, k. w do	820	386.76	4,950	2,342.67	3,550	1,688.12
Shoes pairs	1,450	1,914.00	2,278	3,006.96	2,487	3,283.08
Slippers do			95	51.72		
Shoulder straps, first lieutenant do	6	11.40	11	20.90	5	9.50
Shoulder straps, captain do	15	33.75	25	56.25	17	38.25
Total		3,229.60		5,886.83		7,930.96

Transfers \$42,209.89
 Sales 2.04

Total 42,211.93

Central Branch 7,861.70
 Northwestern Branch 3,518.88
 Eastern Branch 5,094.00
 Southern Branch 8,689.93
 Western Branch 3,227.60
 Pacific Branch 5,886.83
 Marion Branch 7,930.96
Total 42,209.89

EXHIBIT O.—Sales made to State Homes of manufactured articles under "First head" during the year ending June 30, 1898.

19. Morning-report books, company \$15.46

EXHIBIT P.—Statement of amount and kind of clothing and other articles sold to State Homes and the receipts from such sales.

Articles.	Number of.	Value.
Blouses	400	\$842.29
Coat, dress	1	2.89
Trousers	580	1,050.28
Vests	400	516.04
Total		2,411.50
Sold for use as samples:		
Shoes (pair)	\$1.45	
Slippers (pair) . . . . .	.59	
		2.04
Total		2,414.54

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1189

EXHIBIT Q.—Average quantity of goods used in the manufacture of each article of bedding, clothing, etc.

Articles.	Amt.	Articles.	Amt.
Blouses:		Pillowcases, hospital:	
Flannel, d. b., 11½ ounce yards . . .	1.5172	Sheeting yards . . .	0.9386
Jeans, Kentucky do . . .	1.6688	Sheets, barrack:	
Drill, unbleached do . . .	1.0823	Sheeting do . . .	2.5711
Wigan do . . .	.2639	Sheets, hospital:	
Buttons, coat dozen . . .	½	Sheeting do . . .	2.5183
Coats, dress:		Shirts, cotton:	
Cloth, d. b., 20-ounce yards . . .	1.5213	Shirting do . . .	3.1628
Flannel coat lining do . . .	1.8430	Buttons dozen . . .	⅞
Drill, unbleached do . . .	1.50	Shirts, domett flannel:	
Interlining do . . .	1.2266	Flannel, domett yards . . .	3.2431
Canvas, French do . . .	.5688	Buttons dozen . . .	⅞
Wadding dozen . . .	.0834	Shirts, red flannel:	
Buttons, coat do . . .	½	Flannel, red yards . . .	3.6520
Buttons, vest do . . .	½	Buttons dozen . . .	⅞
Coats, great:		Socks:	
Kersey, s. b., 22-ounce yards . . .	2.2714	Yarn, b. w pounds . . .	.2487
Flannel coat lining do . . .	2.1251	Yarn, w. w do . . .	.0415
Drill, unbleached do . . .	1.50	Stripes:	
Canvas, French do . . .	.50	Cloth, white yards . . .	.0881
Interlining do . . .	1.2057	Suspenders:	
Wadding dozen . . .	.1654	Binding gross . . .	.0032
Hooks and eyes do . . .	.5667	Buckles double pairs . . .	1
Buttons, coat do . . .	⅞	Eyelets dozen . . .	½
Drawers, canton flannel:		Rings do . . .	½
Flannel, canton yards . . .	2.4506	Straps double pairs . . .	1
Buttons dozen . . .	½	Webbing yards . . .	1.6670
Tape do . . .	.0083	Trousers:	
Drawers, red flannel:		Kersey, s. b., 22-ounce do . . .	1.2358
Flannel, red yards . . .	3.0043	Drill, black do . . .	.1046
Buttons dozen . . .	½	Drill, unbleached do . . .	.5792
Tape do . . .	.0217	Buttons, fly dozen . . .	½
Mattresses, barrack:		Buttons, suspender do . . .	⅞
Fillings, cotton pounds . . .	.103	Vests:	
Ticking, cotton yards . . .	4.8813	Cloth, d. b., 16-ounce yards . . .	.3492
Twine pounds . . .	.0047	Buckram do . . .	.6478
Batting, cotton do . . .	.0033	Silesia do . . .	.6311
Mattresses, hospital:		Muslin, bleached do . . .	.8236
Fillings, cotton do . . .	24.0360	Wadding dozen . . .	.0159
Ticking yards . . .	4.9145	Buttons, vest do . . .	½
Twine pounds . . .	.0080	Buckles do . . .	⅞
Batting, cotton do . . .	.0040	Aprons, white:	
Overalls:		Muslin, bleached yards . . .	1.2683
Denim yards . . .	2.7904	Tape dozen . . .	.0349
Buckles dozen . . .	⅞	Caps, white:	
Buttons, fly do . . .	½	Cotton, duck yards . . .	.2103
Buttons, suspender do . . .	⅞	Jackets, white:	
Pillowcases, barrack:		Cotton duck do . . .	2.3308
Sheeting yards . . .	.8985		

The following old materials were used in the fabrication of the following articles:

Articles.	Amt.	Articles.	Amt.
Blouses:		Overalls—continued:	
Buttons, coat gross . . .	588.77½	Buttons, fly gross . . .	14½
Coats, dress:		Buttons, suspender do . . .	31½
Buttons, coat do . . .	11.77½	Shirts, cotton:	
Coats, great:		Buttons, agate dozen . . .	79
Buttons, coat do . . .	76.77½	Trousers:	
Drawers, canton flannel:		Buttons, suspender gross . . .	3½
Buttons, bone dozen . . .	574	Vests:	
Overalls:		Buttons, vest do . . .	758½
Buckles gross . . .	47.77½	Buckles do . . .	4½

APPENDIX B.

TABLE 1.—Population.

Branch.	Officers and members.											
	June 30, 1897.			June 30, 1898.			Net gain (+) or loss (-).	Average present and absent.	Average present.	Average absent.	Total cared for.	Average age—years.
	Present.	Absent.	Total.	Present.	Absent.	Total.						
Eastern.....	1,986	573	2,559	1,986	644	2,630	+ 71	2,529	2,042	487	3,100	61
Northwestern.....	2,324	499	2,823	2,283	503	2,786	+ 37	2,798	2,364	434	3,518	61.53
Marion.....	1,477	503	1,980	1,520	658	2,178	+ 198	2,205	1,717	488	2,817	59.94
Central.....	1,073	5,979	4,773	1,186	5,959	+ 20	5,906	4,972	934	7,002	63.72	
Southern.....	1,309	4,535	3,232	1,395	4,627	+ 92	4,613	3,376	1,237	5,305	64	
Western.....	226	811	3,091	2,450	966	3,416	+ 325	3,208	2,480	728	4,020	63.49
Pacific.....	1,580	457	2,037	1,477	604	2,081	+ 44	2,086	1,602	484	2,447	61.58
Total.....	17,779	5,225	23,004	17,721	5,956	23,677	+ 713	23,345	18,553	4,792	28,299	62.1

Branch.	Officers and members.			
	Maximum present.		Minimum present.	
	Number.	Date.	Number.	Date.
Eastern.....	2,137	Sept. 30, 1897	1,937	Apr. 4, 1898
Northwestern.....	2,507	Jan. 5, 1898	2,160	May 7, 1898
Marion.....	1,897	Feb. 22, 1898	1,486	June 8, 1898
Central.....	5,108	Dec. 8, 1897	4,728	Apr. 15, 1898
Southern.....	3,480	Mar. 16, 1898	3,231	July 10, 1897
Western.....	2,599	Jan. 28, 1898	2,278	July 1, 1897
Pacific.....	1,768	Dec. 13, 1897	1,476	June 30, 1898
Total.....	19,496	.....	17,296	.....

Branch.	Officers and members.					Vacant beds at date of inspection.	
	Maximum absent.		Minimum absent.		Average temporarily cared for.	Barracks.	Hospital.
	Number.	Date.	Number.	Date.			
Eastern	652	June 27, 1898	349	Feb. 16, 17, 18, 1898.	12	.....	2
Northwestern	595	May 7, 1898	323	Jan. 1, 1898	40	56	4
Marion	704	June 10, 1898	378	Feb. 15, 1898	16	153	47
Central	1,187	June 29, 1898	766	Dec. 23, 1897	33	0	15
Southern	1,397	June 20, 1898	1,153	Aug. 31, 1897	42	70	20
Western	971	June 23, 1898	597	Feb. 11, 1898	43	0	16
Pacific	604	June 30, 1898	415	Sept. 6, 1897	14	94	34
Total	6,110	.....	3,981	.....	200	372	138

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1191

TABLE 1.—Population—Continued.

Branch.	Changes in membership.										From June 30, 1898, to date of inspection.	Percent of members absent to whole number present and absent.					
	Gain.		Loss.									Admitted.	Discharged.	1895.	1896.	1897.	1898.
			First admission.	Readmission.	Transfer from other Homes.	Transfer to other Homes.	Discharge.	Dishonorable discharge.	Dropped.	Deaths.								Transfer to Government Insane Asylum.	Transfer to other insane asylums.
Eastern	295	185	61	29	204	14	104	105	14	...	145	59	0.207	0.225	0.215	0.193	
Northwestern	283	206	206	199	218	37	126	152	0	0	137	129	.141	.142	.146	.155	
Marion	467	182	188	242	168	14	120	92	8	0	89	20	.196	.204	.203	.221	
Central	530	333	250	204	265	49	245	337	33	0	254	190	.131	.136	.146	.158	
Southern	556	165	47	146	191	5	98	230	7	0	136	45	.244	.245	.266	.268	
Western	441	288	199	107	184	16	107	172	17	0	218	265	.223	.251	.237	.226	
Pacific	316	76	18	42	137	18	63	101	0	5	145	120	.181	.205	.194	.232	
Total ...	288	1,435	969	969	1,367	153	863	1,189	79	5	1,124	828	.185	.195	.199	.205	

TABLE 4.—Number present and absent at the various Branches for each ten days in the fiscal year 1898.

Date.	Central.			Northwestern.			Eastern.			Southern.			Western.		
	Total.	Gain.	Loss.	Total.	Gain.	Loss.	Total.	Gain.	Loss.	Total.	Gain.	Loss.	Total.	Gain.	Loss.
1897.															
July 1.....	5,979			2,823			2,559			4,595			3,091		
10.....	5,999	44	24	2,824	13	12	2,571	26	14	4,555	26	6	3,088	4	7
20.....	5,963	47	83	2,811	33	46	2,584	18	5	4,565	32	22	3,094	26	30
31.....	5,976	87	74	2,786	33	58	2,601	35	18	4,559	38	44	3,118	53	29
Aug. 10.....	5,999	53	30	2,782	22	26	2,595	17	23	4,574	27	12	3,113	8	13
20.....	6,002	41	38	2,797	41	26	2,603	12	4	4,600	35	9	3,125	15	11
31.....	5,993	31	40	2,794	14	17	2,597	5	11	4,603	27	24	3,131	19	13
Sept. 10.....	5,984	12	21	2,804	33	23	2,578	9	28	4,611	22	14	3,142	27	16
20.....	5,984	16	16	2,807	18	15	2,581	11	8	4,624	24	11	3,184	59	17
30.....	5,962	20	42	2,799	7	15	2,584	15	12	4,601	15	38	3,191	25	18
Oct. 10.....	5,918	12	56	2,792	11	18	2,568	14	30	4,614	32	19	3,187	9	13
20.....	5,911	23	30	2,793	19	18	2,552	4	20	4,626	27	15	3,195	34	26
31.....	5,960	32	43	2,798	34	29	2,518	3	37	4,638	26	14	3,205	27	17
Nov. 10.....	5,905	29	24	2,794	20	24	2,505	12	25	4,655	23	6	3,225	39	19
20.....	5,907	18	16	2,812	29	11	2,507	13	11	4,626	25	54	3,225	18	18
30.....	5,904	11	14	2,820	17	9	2,505	6	8	4,647	28	7	3,202	6	29
Dec. 10.....	5,911	22	15	2,820	11	11	2,509	8	4	4,650	11	8	3,202	17	17
20.....	5,878	12	45	2,829	23	14	2,484	4	29	4,655	11	6	3,180	2	24
31.....	5,868	14	24	2,829	21	21	2,467	11	28	4,648	14	21	3,201	39	18
1898.															
Jan. 10.....	5,866	17	19	2,826	6	9	2,469	12	10	4,630	8	26	3,206	14	9
20.....	5,871	19	14	2,819	8	15	2,468	11	12	4,643	23	10	3,201	14	19
31.....	5,871	16	16	2,826	22	15	2,464	6	10	4,660	23	6	3,203	13	11
Feb. 10.....	5,863	8	16	2,826	14	14	2,467	9	6	4,653	8	15	3,193	3	13
20.....	5,862	18	19	2,828	9	7	2,468	6	5	4,662	14	5	3,176	4	21
28.....	5,874	26	14	2,823	0	5	2,469	1	0	4,651	2	13	3,192	23	7
Mar. 10.....	5,882	25	17	2,809	13	27	2,466	5	8	4,628	6	29	3,180	9	21
20.....	5,846	20	56	2,806	11	14	2,474	12	4	4,620	7	15	3,194	36	22
31.....	5,863	52	35	2,807	17	16	2,498	40	16	4,595	6	31	3,200	19	13
Apr. 10.....	5,856	51	58	2,800	18	25	2,506	20	12	4,588	15	22	3,200	72	12
20.....	5,842	23	37	2,780	9	29	2,509	17	14	4,581	15	22	3,264	22	18
30.....	5,857	50	35	2,753	23	50	2,510	17	16	4,590	28	19	3,278	35	21
May 10.....	5,860	33	30	2,767	36	22	2,538	31	3	4,562	11	39	3,305	43	16
20.....	5,867	28	21	2,768	16	17	2,548	16	6	4,587	30	5	3,324	22	3
31.....	5,880	25	12	2,760	14	20	2,569	30	9	4,596	23	14	3,343	28	9
June 10.....	5,898	66	48	2,784	45	21	2,582	19	6	4,613	33	16	3,360	51	34
20.....	5,923	38	13	2,784	10	10	2,587	18	13	4,622	20	11	3,383	32	18
30.....	5,959	74	38	2,786	25	23	2,630	49	6	4,627	55	50	3,416	44	11
Total.....	2,113	2,133		695	732		542	471		770	678		921	604	
Gain.....								71			92			317	
Loss.....			20		37										
1897.....		113			54			93			87				120

TABLE 4.—*Number present and absent at the various Branches for each ten days in the fiscal year 1898—Continued.*

Date.	Pacific.			Marion.			Total.			Net.	
	Total.	Gain.	Loss.	Total.	Gain.	Loss.	Total.	Gain.	Loss.	Gain.	Loss.
1897.											
July 1.....	2,037			1,980			23,004				
10.....	2,050	16	3	1,994	17	3	23,081	146	69	77	
20.....	2,043	8	15	2,042	50	2	23,102	224	203	21	
31.....	2,056	32	19	2,050	45	37	23,146	323	279	44	
Aug. 10.....	2,077	25	4	2,068	30	12	23,208	182	120	62	
20.....	2,090	17	4	2,109	50	9	23,326	211	101	110	
31.....	2,089	7	8	2,115	23	17	23,322	126	130		4
Sept. 10.....	2,079	5	15	2,125	42	32	23,323	150	149	1	
20.....	2,075	2	6	2,133	25	17	23,388	155	90	65	
30.....	2,082	17	10	2,159	38	12	23,378	137	147		10
Oct. 10.....	2,067	2	17	2,208	55	6	23,354	135	159		24
20.....	2,080	21	8	2,230	34	12	23,387	162	129	33	
31.....	2,083	14	11	2,258	42	14	23,400	178	165	13	
Nov. 10.....	2,082	8	9	2,285	29	3	23,451	160	109	51	
20.....	2,084	6	4	2,303	27	9	23,464	136	123	13	
30.....	2,090	10	4	2,307	9	5	23,475	87	76	11	
Dec. 10.....	2,095	9	4	2,297	14	24	23,484	92	83	9	
20.....	2,089	9	15	2,286	8	19	23,401	69	152		83
31.....	2,093	15	11	2,295	19	10	23,401	133	133		
1898.											
Jan. 10.....	2,092	9	10	2,271	4	28	23,360	70	111		41
20.....	2,096	11	7	2,269	13	15	23,367	99	92	7	
31.....	2,103	11	4	2,270	9	8	23,397	100	70	30	
Feb. 10.....	2,101	9	11	2,276	11	5	23,379	62	80		18
20.....	2,104	11	8	2,274	4	6	23,374	66	71		5
28.....	2,106	4	2	2,274	6	6	23,389	62	47	15	
Mar. 10.....	2,108	7	5	2,259	19	34	23,332	84	141		57
20.....	2,115	16	9	2,234	11	36	23,289	113	156		43
31.....	2,102	6	19	2,230	28	32	23,295	168	162	6	
Apr. 10.....	2,099	15	18	2,239	32	23	23,348	223	170	53	
20.....	2,098	9	15	2,238	20	21	23,307	115	156		41
30.....	2,097	15	11	2,243	27	22	23,328	195	174	21	
May 10.....	2,087	7	17	2,230	4	17	23,349	165	144	21	
20.....	2,102	18	3	2,230	25	25	23,434	155	80	75	
31.....	2,085	8	25	2,241	22	11	23,474	150	100	50	
June 10.....	2,084	7	8	2,197	23	67	23,518	244	200	44	
20.....	2,094	19	9	2,193	6	10	23,586	143	75	68	
30.....	2,080	4	18	2,178	16	31	23,676	267	177	90	
Total.....		409	366		837	639		5,287	4,623	990	326
Gain.....		43			198			721		664	
Loss.....									57		
1897.....		101			122			570	120	450	

a Error of 8 in the Western Branch August 20, 1897.

TABLE 5.—*Census at date of inspection—Present in camp.*

Branch.	Officers.	Non-commissioned officers.	Members.	Transients or temporary members.	Civilian employees.		Members of families.			Total.			Aggregate.
					Males.	Females.	Males.	Females.	Children.	Males.	Females.	Children.	
Eastern.....	4	20	2,168	10	36	9	2	16	13	2,240	25	13	2,278
Northwestern.....	5	21	2,259	50	41	13	1	26	34	2,377	39	34	2,450
Marion.....	3	20	1,610	27	26	13	1	13	8	1,687	26	8	1,721
Central.....	7	55	4,065	24	34	20	6	25	5	5,091	45	5	5,141
Southern.....	5	19	3,231	31	31	15	0	4	15	3,317	19	15	3,351
Western.....	5	23	2,515	36	37	14	5	14	6	2,621	28	6	2,655
Pacific.....	4	16	1,497	6	27	8	0	7	8	1,550	15	8	1,573
Total.....	33	174	18,245	184	232	92	15	105	89	18,883	197	89	19,169

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TABLE 6.—Personnel reported at inspection.

Branch.	Present in camp.			In line at review.				Not in line.				Absent from camp.			Per cent. of present in line.
	Officers.	Members.	Total.	Officers.	Members.	Band.	Total.	Sick.	Extra duty.	Excused, etc.	Total.	With leave.	Without leave, etc.	Total.	
Eastern	4	2,188	2,192	4	1,187	22	1,213	327	153	72	552	497	9	506	55.3
Northwestern	5	2,280	2,285	3	1,614	23	1,640	282	289	50	621	493	63	556	71.7
Marion	23	1,612	1,635	14	804	25	843	285	177	355	817	592	45	637	49.0
Central	7	5,020	5,027	7	2,344	42	2,393	909	894	861	2,664	927	69	996	47.6
Southern	5	3,281	3,286	5	1,482	24	1,511	659	394	161	1,214	1,371	261	397	44.75
Western	5	2,538	2,543	5	1,586	19	1,610	307	352	274	933	811	17	828	64.91
Pacific	4	1,513	1,517	...	957	15	972	199	244	171	614	582	6	588	60.09
Total	53	18,432	18,485	38	9,974	170	10,182	2,968	2,503	1,944	7,415	5,273	235	5,508	54.88

TABLE 7.—Statement showing gain in average number of members present.

Year.	Branch.							Total
	Eastern.	North-western.	Marion.	Central.	Southern.	Western.	Pacific.	
1890.....	68	214	56	157	160	327	326	1 308
1891.....	11	73	402	17	138	136	159	996
1892.....	—74	21	252	—135	66	40	95	265
1893.....	73	36	150	—14	59	—5	166	465
1894.....	81	77	144	165	142	149	182	940
1895.....	90	141	145	68	129	72	233	878
1896.....	78	83	213	215	131	79	175	974
1897.....	96	52	141	51	195	34	149	718
1898.....	91	—1	154	—61	50	325	44	602
Total	514	696	1,717	463	1,070	1,157	1,529	7,146
Average	57.1	77.3	190.7	51.4	116.6	128.5	169.8	791.4

TABLE 8.—Statement relating to discipline.

Branch.	Number of arrests.	Number of trials for—			Number of members tried during year.			Total number of—			Total days in confinement.	Greatest number drunk on one day.	When.	
		Drunkenness.	Fence jumping.	Absence without leave.	Once.	Twice.	More than twice.	Total.	Offenses committed.	Members punished.				Members in confinement.
Eastern	544	317	....	227	274	180	90	544	544	544	a12-24	19	b Sept. 23, 1897
Northwestern	1,678	476	238	465	478	174	135	787	1,678	664	0	17	b Oct. 21, 1897	
Marion	343	131	134	48	138	58	24	221	343	220	5,995	16	c Nov. 30, 1897	
Central	2,750	665	419	68	909	345	291	1,545	2,750	1,545	.....	13	Dec. 25, 1897
Southern	2,190	1,256	156	d 778	171	216	388	1,321	2,190	1,266	1,906	33	b Dec. 24, 1897	
Western	1,199	487	0	369	190	85	122	397	1,199	397	0	49	b May 30, 1898	
Pacific	656	60	0	39	209	88	87	384	656	157	156	78	c Sept. 25, 1897	
Total	9,360	3,392	947	1,094	2,360	1,146	1,135	5,198	9,360	4,793	4,344	6,073	157	

a Hours.

b Pension day.

c Three days after pension day.

d Other offenses, 304.

e Shortly after pension day.

TABLE 8.—Statement relating to discipline—Continued.

Branch.	Per cent of average present.											In confinement at date of inspection.		
	Arrests.	Trials for—			Tried.				Offenses committed.	Punished.	In confinement.	Greatest number drunk on one day.	Number.	Per cent.
		Drunkenness.	Fence jump- ing.	Absence with- out leave.	Once.	Twice.	More than twice.	Total.						
Eastern	26.64	15.52	.....	11.12	13.42	8.81	4.40	26.64	26.64	26.64	26.64	.93	0	.....
Northwestern	70.98	20.14	10.06	19.67	20.22	7.36	5.71	33.29	70.98	28.09	0	.72	0	.....
Marion	19.97	7.62	7.79	2.79	8.03	3.37	1.39	12.80	19.97	12.81	11.24	.93	28	0.16
Central	55.30	13.37	8.42	1.36	18.28	6.93	5.85	31.07	55.30	31.07	31.07	.26	4	.08
Southern	64.57	37.20	4.62	23.04	5.06	6.39	11.43	39.12	64.57	37.50	56.42	.97	4	.118
Western	48.34	19.63	0	14.87	7.66	3.42	4.91	16.008	48.34	16.008	0	1.97	0	.....
Pacific	40.94	3.74	0	2.43	13.04	5.49	5.43	23.97	40.94	9.80	9.73	.62	0	.....
Total	50.45	18.28	5.10	10.74	12.76	6.17	6.11	28.01	55.30	25.83	23.41	.84	36	.....

TABLE 9.—Amusements, recreation, etc.

Branch.	Facilities for amusement.	Efforts made to enlarge the scope of amusements.
Eastern	Opera house, club house, billiard, smoking, card, and reading rooms, and library.	Increase in the seating capacity of the opera house and the organization of a social club.
Northwestern ...	Card room, billiard room, social club, theater, beer hall and boating on the lake.	Not any special efforts have been made.
Marion	Theater, band, library, billiard hall, and club room.	None.
Central	Theater, veterans' clubhouse, boats, etc.	Two additional shuffle boards and two hydrocycles have been purchased during year.
Southern	Theater, billiard room, pool room, card and smoking room, boating, etc.	Present facilities satisfactory.
Western	Entertainments in amusement hall, billiard room, library, band concerts, fishing in lake.	Erection of a new theater building is now under contemplation.
Pacific	A small temporary structure, seating capacity about 250, not equipped as a theater or amusement hall, was the only place provided for amusements at this Branch during the past year. The Board of Managers, however, appropriated \$14,000, viz., \$8,000 from post fund and \$6,000 from Ward memorial fund, for an amusement and assembly hall, which is about completed, with the exception of some inside furniture. It will seat about 1,000 persons and give ample facilities for amusements in the future.	Erection of new amusement and assembly hall.

TABLE 9a.—Amusements, recreation, etc.—Library.

Branch.	Number of volumes.				Papers.		Periodicals.			Number of books.		
	At close of year.	Added during year.	Purchased.	Presented.	Subscribed for.	Furnished free.	Subscribed for.	Furnished free.	Read in library or reading room.	Taken from library.	Total read.	Average read per member.
Eastern	9,213	259	259	.....	80	113	41	1	1,492	28,485	29,977	14.6
Northwestern	8,878	356	313	43	63	40	16	8	50	35,904	35,954	15.2
Marion	3,841	416	96	320	18	7	8	6	3,500	28,796	32,296	18.8
Central	21,465	814	128	686	61	149	26	15	.....	48,955	48,955	9.8
Southern	9,846	154	16	138	9	66	4	2	0	43,650	43,650	12.9
Western	9,159	408	4	404	15	92	12	0	150	20,355	20,505	8.2
Pacific	2,029	111	17	94	0	2	14,900	9.3
Total	64,431	2,518	833	1,685	246	469	107	32	5,192	206,145	226,297	12.1

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TABLE 9a.—*Amusements, recreation, etc.—Library—Continued.*

Branch.	Ten books most read during year.	Class of reading in greatest demand.	Average daily attendance.
Eastern	Ishmael, Family Doom, Ivanhoe, Jacob Faithful, Necromancer, Snarleyow, Percival Keene, Captain Blake, Cadet Days, and Fort Frayne.	Fiction	700
Northwestern..	The Wandering Jew, Quo Vadis, At Bay, Ishmael, Self Raised, Count of Monte Cristo, The Abbott, English Orphans, Barriers Burned Away, and Les Misérables.	Fiction, books of travel, and works relating to the war of the rebellion.	350
Marion	Willie Riley, Romola, Shandon Bella, Marooned, Captain King, What Can She Do, The Fair God, Out of Due Season, Crooked Path, Shams.	Fiction and history...	275
Central	Count of Monte Cristo, Memoirs of a Physician, Missing Bride, Curse of Clifton, Quo Vadis, Final Reckoning, Hugh Wynne, Wreck of the Corsair, Mystery of Cloomber, Wild Huntress.	.....do .....	.....
Southern	Works of Charles Lever, Captain Marryat, Mrs. Southworth, Bret Harte, Charles Dickens, Mark Twain, Samuel Lover, Hall Caine, Hugh Conway, and John Hay.	Fiction and War Records.	185
Western	Robert Elsmere, Ben Hur, Wandering Jew, Allen Quartermain, Uncle Tom's Cabin, Adam Bede, Finkerton's book, Ivanhoe, Peck's Bad Boy, The Deserter.	Fiction and history...	180
Pacific	Count of Monte Cristo, Life on the Mississippi, Charles O'Mally, A Gentleman of France, Handy Andy, The Man in Black, Kitty's Conquest, Innocents Abroad, Broken Links, Midshipman Easy.	Magazines and fiction.	136

TABLE 9b.—*Amusements, recreation, etc.—Band.*

Branch.	Average strength.		Cost for past year.	Concerts.		Average cost for year.			Class of music.	How often are national airs and American music played?
	Members.	Civilians.		Number.	Well attended.	Per musician.	Per concert.	Per member of average present.		
Eastern....	0	21	\$8,413.09	276	Yes	\$400.62	\$30.48	\$4.12	Standard overtures, marches, etc., and popular airs; this includes national airs, etc.	Daily.
Northwestern.	0	20	7,770.69	411	Yes	388.53	18.91	3.28	Varied repertoire, popular music predominating.	At every concert.
Marion	2	20	8,342.13	220	Yes	379.18	37.91	4.85	Classical and popular.	Do.
Central	4	30	11,651.82	224	Yes	342.64	52.01	2.34	Classical, national, and popular.	Do.
Southern ..	2	22	6,417.60	238	Yes	267.40	26.96	1.90	Standard, up to date.	Do.
Western...	3	164	7,024.17	357	Yes	413.18	19.67	2.83	Classical and popular.	Almost daily.
Pacific	3	9	4,032.61	364	Yes	336.05	11.07	2.51	Operatic and national medleys and overtures; descriptive and characteristic medleys; also sacred and secular music.	Every Sunday and on national holidays.
Total ..	11.75	138.25	53,652.11	2,090	357.68	25.67	2.89		

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TABLE 9c.—Amusements, recreation, etc.—Theater.

Branch.	Performances.			Charge of admission to—		Revenue from this source.	Seating capacity.	Character of performances.	Other use made of theater.
	Number of free.	Number of paid.	Expenses for.	Members.	Others.				
Eastern	17	31	\$8,175.00	<i>Cents.</i> 10	<i>Cents.</i> 25	\$1,242.38	1,200	Comedies, melodramas, and occasional tragedies by best companies playing in the State.	None.
Northwestern.	2	12	1,425.18	0	(a)	0	850	Chiefly light drama.	Used occasionally for lectures.
Marion.....	10	1	0	5,10	50	0	500	Dramas, lectures, concerts, etc.	Religious services on Sabbath.
Central	6	39	8,076.98	(c)	(d)	2,140.80	1,500	Plays, concerts, lectures, etc.	Soldiers' reunions, etc.
Southern....	42	10	9,865.00	5,10	(e)	3,394.77	1,400	Excellent.....	Celebration of anniversaries by soldier organizations, encampments of the department G. A. R., Union Veteran Legion, Sunday school exhibitions, and public meetings.
Western ...	2	23	2,245.00	0	(f)	4.25	850	Drama, comedy, musical, and farce.	Lectures, memorial meetings, band concerts, etc.
Pacific	2	3	0	15	15	0	250	Musical entertainments, lectures, etc.	Used for all assembly purposes, religious services, entertainments, Grand Army meetings, and by the various societies of the Home.
Total....	81	119	29,787.16	.....	.....	6,782.20	6,550		

a Only members admitted.

b Will be when improvements are finished.

c None since March 8, 1898.

d Officers and civilian employees, 15 and 25 cents; others 25 and 50 cents.

e 25 cents to \$1, according to location.

f 25 cents to officers and civilian employees; 50 cents to others.

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TABLE 9d.—Amusements, recreation, etc.—Miscellaneous.

Branch.	Number of billiard tables.					Other indoor games.	Games out of doors.	Boats.				
	Pool tables.	Bagatelle tables.	Pigeonhole tables.	Shuffleboards.	Card tables.			Charge for use of.			Receipts for year.	Expenses.
								Number.	To members.	To civilians.		
Eastern....	5	3	...	...	18	Checkers and dominoes.	None	...	...	...	...	...
North-west-ern.	3	3	2	1	0	12	Checkers, chess, and billiards.	7	0	a \$0.05	\$79.90	\$19.13
Marion	3	1	0	0	0	8	Checkers, chess, and dominoes.	Quoits ..	0	...	...	...
Central	5	4	1	1	4	18	Checkers, backgammon, chess, etc.	Shuffleboards, quoits.	b5	0	0	362.50
Southern ..	3	2	1	0	0	24	Chess and checkers.	None	c4	0	0	...
Western....	2	2	0	1	0	74	Checkers and dominoes.	Quoits ..	5	0	25c. per hour.	27.30 44.20
Pacific.....	d1	0	0	0	0	37	Chess, checkers, and backgammon.	None	0	...	...	...
Total..	22	15	4	3	4	191	.....	21	...	...	107.20	425.83

a Per one-half hour for each person.

c About 40 private boats belonging to members.

b 2 hydrocycles.

d Owned and used by Keeley Club.

TABLE 10.—Societies among members.

Branch.	Name.	Number.	Membership.	Effect upon discipline.
Eastern.....	Cutler Post, No. 48, G. A. R., and Veterans' Social Club.	2	273	Beneficial.
Northwestern	Veterans' Social Club, 2 posts of G. A. R., and Association of Naval Veterans.	4	570	Good.
Marion	Union Veteran Legion, G. A. R., Chloride of Gold Club, The Christian Union, Union Temperance League, League of the Sacred Heart.	6	937	Excellent.
Central	G. A. R., U. V. L., U. V. W., and Naval Veterans ...	4	540	They are not aids to discipline.
Southern	2 G. A. R. posts, 1 Encampment Union Veteran Legion, Veteran Keeley League, Christian Endeavor Association.	5	1,000	None perceptible.
Western	1 post G. A. R., Union Veteran Legion, Christian Endeavor.	3	502	Good.
Pacific.....	2 posts G. A. R., Union Veteran Legion, Association of Naval Veterans, Christian Endeavor Society, etc.	5	a 570	Uniformly good.
Total .....	...	20	4,392	

a Exclusive of Christian Endeavor Society.

TABLE 11.—*Keeley, Wherrell, gold, or other cures for alcoholism, etc.*

Branch.	Number taking cure during year.		Number relapsed.	Loss in membership.	Funds.			Present membership.	Members employed under pay.	Average monthly compensation.	Meetings held where and how often.
	First time.	Second or third time.			Receipts.	Expenses.	Balance at close of year.				
Eastern											
Northwestern											
Marion	23	9	34	66	\$556.33	\$668.53	\$34.97	108	22	\$15.92	In clubroom over kitchen every 2 weeks.
Central	0	0	3	5	0	389.04	369.32	200	18	13.10	Gold Club room; bi-monthly, September to April.
Southern	(a)	(a)				144.00					
Western											
Pacific	43	7	8	3	0	0	0	50	12	12.60	In room under hospital; no regular meetings.
Total	66	16	45	74	556.33	1,201.57	404.29	358	52	.....

a None administered during year.

TABLE 12.—*Religious services.*

Branch.	Where held.	Place suitable.	Capacity.	How often held.
Eastern	Chapel	Yes...	400	Protestant, every Sunday; Catholic, Sundays and holy days.
Northwestern	do	Yes...	350	7 to 8 times per week, not counting funerals.
Marion	Stinson Memorial Hall	No....	a 500	Twice a week by each denomination.
Central	Chapels	Yes...	450, 550	Protestant, 6 per week; Catholic, daily.
Southern	Chapel	Yes...	1,500	Regularly on Sundays, besides week-day services.
Western	do	Yes...	b 600	Daily.
Pacific	Assembly hall and hospital.	No....	250	Every Sunday morning and afternoon; other services held during week.
Total			4,600	

Branch.	What denominations.	Where chaplains live.	Monthly compensation.
Eastern	Episcopal, Methodist, Baptist, Unitarian, Universalist, and Catholic.	Outside of Home	\$75 each.
Northwestern	Roman Catholic, Protestant Episcopal, Methodist, and Lutheran.	Protestant chaplain on Home grounds; Roman Catholic chaplain in Milwaukee.	\$41.66 each.
Marion	Protestant and Catholic	Protestant in Marion, Catholic in Gas City, Ind.	\$50 each.
Central	do	On Home grounds	Protestant chaplain, \$125 per month and quarters, fuel, light, and forage for 1 horse; Catholic chaplain, \$100 per month and quarters, fuel, light, and rations.
Southern	do	Protestant on Home grounds; Catholic at Old Point, Va.	Protestant chaplain, \$125; Catholic chaplain, \$41.67.
Western	do	Protestant on Home grounds; Catholic at Orphans' Home, near grounds.	Protestant, \$100; Catholic, \$75.
Pacific	do	Protestant at Los Angeles; Catholic at Santa Monica.	\$41.66 ^a each.
Total			\$41.66 to \$125.

a Of hall; of chapel, \$12.

b Protestant, ground floor, 300; Catholic, basement, 300.

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TABLE 12.—*Religious services*—Continued.

Branch.	Average attendance.	Average vacant seats.	How often room is crowded.	Services during year by—	Visits to sick by—	What other duties.
Eastern....	300	100	.....	Protestant, 52; Catholic, 75.	No data.....	Attendance at funerals.
Northwestern.	200	50	.....	Protestant, 91; Roman Catholic, 220.	Protestant, 700; Roman Catholic, 150.	Protestant chaplain, funerals, baptisms, confirmations, holy communion in public and in hospital. Roman Catholic chaplain, funerals, temperance pledges, hearing confessions.
Marion	250	.....	Catholic chapel is always filled on Sunday morning.	Protestant, 89; Catholic, 160.	3 per week on an average.	Each reads burial services, keeps a general oversight of the moral reform at the Home, and has charge of correspondence relative to the interests of the "Harris" library. Protestant chaplain also acts as librarian.
Central ...	a 400 b 500	a 50 b 50	.....	Protestant, 6 per week; Catholic, daily.	Protestant nearly every day; Catholic, daily.	Visiting members in barracks, attending funerals, etc.
Southern ..	500	1,000	.....	Protestant, 474; Catholic, 230.	Protestant, 225; Catholic, 278.	General duties of clergymen.
Western...	c 250	50	.....	Protestant, 252; Catholic, 140.	Protestant, daily; Catholic, about 300.	Protestant, funerals, 106. Catholic, funerals, 45; confessions and communions, 900.
Pacific.....	250	(d)	At every meeting.	Protestant, 104; Catholic, 40.	Protestant, 52; Catholic, 50.	Protestant, funerals, 67. Catholic funerals, 21.
Total ..	2,650	1,300				

a Protestant.

b Catholic.

c Each.

d None.

TABLE 13.—*Farm.*

Branch.	Acres under cultivation.	Buildings, sheds, etc.	Vehicles, Public carts, etc. animals.				Private horses.	Cows kept.	Pigs kept.	Other animals kept.	Milk yielded, in gallons.	Price per gallon in nearest town.	Value of farm stock, June 30, 1898.
			Public.	Private.	Horses.	Mules.							
Eastern.....	500	10	40	7	13	.....	5	70	0	23 heifers, 6 calves, 2 oxen, 1 bull.	35,980	\$0.20	\$6,400.00
Northwestern.	250	17	31	4	22	.....	6	42	0	Sheep and lambs ..	32,335	.15	3,500.00
Marion	124	3	12	4	12	.....	4	0	0	None.....	(a)	.16	645.00
Central	285	12	51	15	26	.....	8	25	0	Deer in park	18,643	.13½	2,683.00
Southern	65	8	35	12	8	9	4	33	231	None.....	17,985½	.26	3,774.50
Western	122	6	23	11	16	.....	8	0	0	None.....	(a)	.12½	1,200.00
Pacific.....	469	18	26	6	20	2	6	31	360	1 bull.....	14,198	.15	4,900.00
Total	1,815	74	218	59	128	.....	41	201	591	.....	119,141½	.16	23,132.50

a No cows.

TABLE 13.—*Farm*—Continued.

Branch.	Average employees.		Average employed in—					Value of farm products.
	Members.	Civilians.	Garden.	Vegetable garden.	Flower garden.	Lawn.	Teaming.	
Eastern.....	40	4				7	9	\$13,075.00
Northwestern.....	26	2	4	5	3	4	10	8,000.42
Marion.....	21	2			6		11	4,715.07
Central.....	15	2		36	12	27	16	14,374.64
Southern.....	2	6	6	2	3		11	9,580.22
Western.....	3	1	13	1	6	4	7	4,044.04
Pacific.....	10	2		10	3	7	8	14,119.57
Total.....	117	19	23	58	30	64	72	67,918.56

Branch.	Disposition of products.			Cost of maintaining during year.		
	Turned into commissary.	Fed to stock.	Sold.	Lawn and flower garden.	Farm proper.	Transportation and teams.
Eastern.....	\$8,122.90	\$4,952.70		\$1,348.80	\$7,444.02	\$2,625.05
Northwestern.....	5,293.91	1,879.17	\$327.34	1,540.00	3,960.00	2,500.00
Marion.....	3,855.47	743.20	116.40	6,668.46	3,106.23	760.18
Central.....	4,686.86	1,607.95	1,660.58	5,627.54	4,641.98	3,292.46
Southern.....	6,535.17	2,647.50	710.58	3,064.63	3,222.69	4,215.00
Western.....	4,044.04	0	0	1,632.77	1,533.00	2,540.76
Pacific.....	10,225.34	2,089.81	80.39	2,413.73	5,353.64	2,014.07
Total.....	42,763.69	13,920.33	3,395.27	22,235.93	29,241.56	17,888.52

TABLE 14.—*General fund*.

Branch.	Receipts for year ending June 30, 1898.				
	Current expenses.	Subsistence.	Clothing.	Household.	Hospital.
Eastern.....	\$25,074.97	\$119,910.68	\$2,637.79	\$47,960.40	\$24,652.95
Northwestern.....	34,776.88	129,246.38	2,255.77	47,093.12	27,649.75
Marion.....	22,997.10	82,741.74	1,846.57	14,148.54	17,616.47
Central.....	71,812.29	259,129.66	7,337.76	83,606.86	49,079.20
Southern a.....	5,155.83	7,433.25	1,069.01	1,474.35	76.90
Western.....	29,463.45	124,342.17	1,905.12	48,374.47	23,878.66
Pacific.....	22,184.75	91,058.99	1,342.18	30,137.69	19,091.90
Total.....	211,465.27	813,862.87	18,393.20	272,815.43	162,045.92

Branch.	Receipts for year ending June 30, 1898.				
	Transportation.	Construction.	Repairs.	Farm.	Total.
Eastern.....	\$923.50	\$19,000.00	\$18,410.82	\$9,957.74	\$268,548.85
Northwestern.....	750.00		20,466.71	9,114.79	271,353.40
Marion.....	989.46	18,164.00	13,479.41	5,630.35	177,613.64
Central.....	1,200.00	6,000.00	47,269.34	15,910.56	541,345.67
Southern a.....	4.50	50.55	26.07	607.31	15,896.77
Western.....	2,250.00	15,600.00	20,602.95	7,587.60	274,004.42
Pacific.....	2,168.80	13,500.00	23,141.98	9,547.37	212,173.75
Total.....	8,286.26	72,314.55	143,397.28	58,355.72	1,750,936.50

a Exclusive of receipts from general treasurer.

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TABLE 14a.—General fund.

Branch.	Expenditures for fiscal year ending June 30, 1898.				
	Current expenses.	Subsistence.	Clothing.	Household.	Hospital.
Eastern	\$24,824.91	\$117,472.61	\$1,533.96	\$47,399.50	\$23,512.11
Northwestern	31,525.52	129,065.37	1,985.48	45,644.21	27,177.08
Marion	21,491.03	82,624.33	1,612.95	12,114.59	17,059.30
Central	63,721.16	242,955.45	4,420.69	74,264.64	48,949.31
Southern	28,664.21	175,666.97	1,961.61	52,156.64	24,337.87
Western	24,141.57	124,328.16	1,719.87	44,343.58	23,670.75
Pacific	20,834.40	91,011.81	1,059.88	30,125.06	19,064.66
Total	213,202.80	963,124.70	14,294.44	306,048.22	183,871.08

Branch.	Expenditures for fiscal year ending June 30, 1898.				
	Transportation.	Construction.	Repairs.	Farm.	Total.
Eastern	\$741.82	\$17,179.80	\$17,272.91	\$9,651.90	\$259,589.52
Northwestern	249.32		19,943.31	8,840.20	264,430.55
Marion	975.05	6,925.62	12,458.24	5,110.82	160,371.93
Central	962.60	5,243.92	47,208.86	14,862.50	502,589.13
Southern	1,825.03	4,447.38	22,411.07	10,940.49	320,441.27
Western	1,712.86	14,085.55	21,764.66	7,316.57	263,083.07
Pacific	1,744.48	13,433.48	22,897.09	9,422.22	209,593.08
Total	8,209.66	61,345.75	163,856.14	66,145.76	1,980,098.55

TABLE 14b.—General fund.

Branch.	Expended during year.		Received on post-humous account.	Disbursed on post-humous account.	Cost for year of—	
	By check.	In currency.			Improvements.	Repairs.
Eastern	\$259,589.52	.....	\$2,651.12	\$2,650.39	\$17,179.80	\$17,272.91
Northwestern	264,430.55	.....	7,035.78	4,321.98	.....	19,943.41
Marion	160,371.93	.....	2,363.85	960.25	19,262.99	12,458.24
Central	502,589.13	.....	18,517.80	15,055.64	5,243.92	48,978.10
Southern	250,904.83	\$69,536.44	5,153.54	4,390.51	4,477.38	22,411.07
Western	193,784.71	69,298.36	6,227.29	1,687.28	14,085.55	21,673.29
Pacific	209,592.08	.....	2,709.75	1,167.51	10,131.56	22,765.01
Total	1,841,263.75	138,834.80	44,659.13	30,133.56	70,881.20	165,490.08

TABLE 14c.—General fund.

Branch.	Improvements now under way and contemplated and authorized for present fiscal year.	Estimated cost.	Improvements needed for year ending June 30, 1900.	Estimated cost.
Eastern.....				
Northwestern.....	Conversion of old hospital building into convalescent barrack and two new boilers for steam plant.	\$15,000	None	
Marion.....	A chapel and new gas well and connections.	11,775	Building for electric-light plant, greenhouse, nurses' quarters, surgeon's quarters, carpenter and paint shop, and pump (steam), compound duplex.	\$14,450.00
Central.....	1 brick barrack and 1 brick water-closet.	28,300	1 brick barrack and fixtures, addition to electric-light plant, addition to electric-plant building, and addition to laundry building.	43,493.70
Southern.....	2 wooden barracks and furniture in lieu of old hospital buildings.	35,000	Quartermaster's building.....	15,000.00
Western.....	Extending electric-light plant, erection of quartermaster and commissary building and cottage for women nurses.	18,500	2 barracks, ice plant, steel ceiling for dining hall, cow barn, blacksmith's shop, hog sheds, and wagon sheds.	62,251.00
Pacific.....	Bakery, oil tanks and foundations, alteration of hospital attic for nurses' quarters...	13,950	Treasurer's quarters, additional barracks, church, quarters in attics to 6 barracks, addition to electric lighting, quarters in 3 attics to hospital.	87,100.87
Total.....		122,525		222,295.57

TABLE 15.—Employees under general fund.

Branch.	Number authorized.					Average daily number employed.					
	Officers.	Non commissioned officers.	Members.	Civilians.	Total.	Officers.	Non commissioned officers.	Members.	Civilians.	Total.	Per cent of average present.
Eastern.....	4	20	262	30	316	5	23	344	33	290	14.2
Northwestern.....	5	29	813	45	892	5	23	344	33	405	17.1
Marion.....	3	19	233	67	322	8	52	774	58	892	17.9
Central.....	8	52	823	62	945	5	25	311	37	531	15.7
Southern.....	5	25	431	72	533	5	25	311	37	378	15.2
Western.....	5	26	378	35	444	4	16	239	30	289	18
Pacific.....	4	16	327	43	390	4	16	239	30	289	18
Total.....	34	187	3,267	354	3,842	22	116	1,668	158	2,785	.....

Branch.	Compensation per day.											
	Officers.			Noncommissioned officers.			Members.			Civilians.		
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.
Eastern.....	\$7.64	\$4.58	\$5.87	\$1.33	\$0.417	\$0.70	\$1	\$0.167	\$0.39	\$3.33	\$0.50	\$1.09
Northwestern.....	7.02	2.50	5.05	1.17	.25	.61	1.33	.17	.30	4.17	1.25	1.82
Marion.....	7.64	5.55	6.59	1.66	.41	1.03	.83	.25	.54	4.16	.40	2.70
Central.....	9.16½	3.33½	5.44½	2	.25	.62½	1.16½	.16½	.31½	5	.30	1.93
Southern.....	7.63	4.17	5.03	1.67	.25	.69	2	.25	.34	4.15	.40	.47
Western.....	7.64	3.33	5.59	1.66	.25	.96	1	.16	.58½	4.16	.083	2.28½
Pacific.....	7.63	4.58	5.87	1.67	.25	.75	1.67	.16	.35	4.16		1.57
Total...	9.17	2.50	5.05 to 6.59	2	.25	.61 to 1.03	2	.16	.30 to .58	5	.083	.47 to 2.70

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TABLE 15—Employees under general fund—Continued.

Branch.	Amount received during year.						Average number per day who worked without pay.
	Officers.	Noncommissioned officers.	Members.	Civilians.	Total.	Average per employee.	
Eastern	\$8,471.77	\$4,860.00	\$31,515.07	\$15,335.50	\$60,182.34	\$207.53	0
Northwestern	9,378.82	5,082.50	41,812.44	17,231.37	73,505.13	181.49	171
Marion	6,827.91	4,946.00	28,150.52	20,828.61	60,753.04	.....	17
Central	15,793.77	11,909.14	90,696.13	40,114.51	158,513.55	177.70	285
Southern	10,129.63	6,263.57	47,453.82	12,133.17	75,980.19	143.08	70
Western	10,080.72	5,860.87	37,370.41	20,018.75	73,330.75	193.99	0
Pacific	8,234.30	3,850.00	30,433.35	16,976.62	59,494.27	205.86	1,233
Total	68,916.92	42,772.08	307,431.74	142,638.53	561,759.27	179.89	1,760.7

TABLE 16.—Employees under post fund.

Branch.	Average daily employed.					Compensation received during year.				
	Noncommissioned officers.	Members.	Civilians.	Total.	Per cent of average membership.	Noncommissioned officers.	Members.	Civilians.	Total.	Average per employee.
Eastern	0	23	31	54	2.6	.....	\$3,072.81	\$9,393.25	\$12,466.06	\$230.85
Northwestern ..	0	43	28	71	3.00	.....	5,531.74	8,406.70	13,938.44	196.32
Marion	1	15	22	38	2.21	\$420.00	1,986.55	4,999.11	7,405.66	194.88
Central	4	100	47	151	3.03	930.00	11,944.87	13,226.57	26,101.44	172.85
Southern .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western	0	27	18	45	1.81	.....	4,452.84	5,622.60	10,075.44	223.88
Pacific	0	12	13	25	1.56	.....	1,883.75	4,065.16	5,948.91	237.96
Total	5	220	159	384	2.53	1,350.00	28,872.56	45,713.39	75,935.95	197.75

Branch.	Compensation per day.								
	Noncommissioned officers.			Members.			Civilians.		
	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.
Eastern .....	.....	.....	.....	\$0.83	\$0.25	\$0.38	\$3.33	\$0.33	\$0.83
Northwestern ..	.....	.....	.....	1.00	.1666	.36	3.33	.25	.83
Marion	\$1.16	\$1.16	\$1.16	.83	.25	.54	2.50	.58	1.54
Central .....	.83	.41	.64	1.16	.25	.33	4.16	.33	.78
Southern .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western .....	.....	.....	.....	.496	.388	.458	1.10	.584	.866
Pacific .....	.....	.....	.....	.833	.25	.415	2.50	.333	.961

TABLE 17.—Statement of cost per capita for maintenance for the fiscal year 1898, to September 30, 1898, to include disbursements for that year.

Branch.	Attend- ance.	Appropriations.							Total.
		Current ex- penses.	Subsist- ence.	House- hold.	Hospi- tal.	Trans- porta- tion.	Repairs.	Farm.	
Central.....	4,976	\$10.88	\$54.48	\$18.73	\$10.98	\$0.22	\$9.93	\$3.26	\$108.48
Northwestern.....	2,369	11.80	55.59	20.92	12.02	b. 13	8.42	8.73	112.61
Eastern.....	2,045	11.09	a 58.53	a 24.86	12.00	.36	8.43	4.72	119.99
Southern.....	3,875	b 7.63	55.11	16.83	b 7.87	.58	b 7.36	8.39	b 98.77
Western.....	2,483	10.13	b 52.76	19.34	10.73	.75	8.13	b 3.16	105.00
Pacific.....	1,602	12.63	57.96	20.03	a 12.43	a 1.17	a 14.29	a 5.88	a 124.39
Marion.....	1,720	a 13.36	53.28	b 9.32	11.28	.54	8.55	3.42	99.75
General average.....		10.71	54.61	18.66	10.78	.46	9.12	3.74	106.00
Clothing.....									11.44
Salaries.....									1.91
Total, 1898.....	18,570	10.71	54.61	18.66	10.78	.46	9.12	3.74	121.95
Total, 1897.....	18,169	11.167	53.763	19.546	10.739	.565	9.236	3.911	123.078
Total, 1896.....	17,451	11.539	56.431	20.069	10.468	.649	9.198	3.948	126.075

a Maximum.

b Minimum.

TABLE 18.—Post-fund business.

Branch.	On hand June 30, 1897.			On hand June 30, 1898.		
	Cash.	Merchan- dise.	Fixtures.	Cash.	Merchan- dise.	Fixtures.
Eastern.....	\$10,458.99	\$3,541.16	\$7,746.33	\$13,239.41	\$1,961.75	\$8,816.63
Northwestern.....	9,792.91	1,339.01	8,245.45	9,414.62	1,692.62	7,798.37
Marion.....	1,858.24	2,296.36	5,319.44	1,506.71	2,791.91	5,752.48
Central.....	11,971.71	14,256.28	98,240.53	26,237.48	10,581.09	103,745.39
Southern.....	10,231.79	3,750.46	60,396.21	12,518.15	2,147.40	60,052.01
Western.....	4,628.10	1,908.95	29,509.72	4,449.68	1,912.51	30,067.97
Pacific.....	7,176.55	627.67	1,884.49	5,538.66	781.93	12,702.50
Total.....	56,116.29	27,719.89	211,342.17	69,904.71	21,868.21	229,515.75

Branch.	Sales during year.				
	Home store.	Restaurant.	Beer hall.	Hotel.	Total.
Eastern.....	\$14,002.45	(a)	\$34,748.05	\$5,192.75	\$53,943.25
Northwestern.....	13,797.54	.....	28,330.60	.....	42,128.14
Marion.....	24,391.17	.....	.....	.....	24,391.17
Central.....	31,082.36	(a)	81,970.85	8,657.51	124,710.72
Southern.....	13,677.22	.....	43,636.05	11,406.08	68,719.35
Western.....	9,608.05	\$1,499.75	25,038.55	.....	36,146.35
Pacific.....	10,960.27	.....	18,383.85	.....	29,344.12
Total.....	117,519.06	1,499.75	235,107.95	25,256.34	379,383.10

Branch.	Receipts from—				Expenditures for stock.				
	Trans- porta- tion.	Amuse- ments.	Other sources.	Total.	Home store.	Restau- rant.	Beer hall.	Hotel.	Total.
Eastern.....	\$7,862.42	\$1,444.03	\$948.79	\$10,255.24	\$10,033.92	(a)	\$15,273.36	\$4,113.36	\$29,420.64
Northwestern.....	2,961.30	79.94	170.67	3,211.91	10,311.93	.....	12,216.55	.....	22,528.48
Marion.....	7,560.00	213.29	3.00	7,776.29	15,954.38	.....	.....	.....	15,954.38
Central.....	18,495.81	2,140.80	149.31	20,785.92	22,658.02	(a)	34,601.44	6,165.52	63,424.98
Southern.....	5,358.11	3,469.54	438.41	9,266.06	9,190.75	.....	19,934.05	7,306.93	36,371.73
Western.....	516.61	33.15	1,343.21	1,892.97	7,012.49	\$1,351.92	11,608.65	.....	30,173.06
Pacific.....	45.00	.....	45.00	90.00	8,758.84	.....	10,249.60	.....	19,008.44
Total.....	42,799.25	7,380.75	3,053.39	53,233.39	83,880.33	1,361.92	104,063.65	17,565.81	206,881.71

a Included in hotel.

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1205

TABLE 18.—*Post-fund business*—Continued.

Branch.	Expenditures for—				
	Clerks and other help.	Fixtures.	Amusements.	Transportation.	Insurance.
Eastern.....	\$2,716.00	.....	\$18,471.18	\$8,698.81	\$400.50
Northwestern.....	3,036.74	\$772.03	1,400.00	3,762.63	100.00
Marion.....	934.97	.....	5,786.89	7,361.21	522.50
Central.....	14,337.06	543.44	22,474.60	18,324.87	930.00
Southern.....	4,029.85	179.16	23,717.07	5,031.61	.....
Western.....	10,075.44	388.94	2,265.90	786.61	158.25
Pacific.....	852.50	350.45	3,852.41	50.34	.....
Total.....	35,982.56	2,234.02	77,968.05	44,016.08	2,111.25

Branch.	Expenditures for—			Amount of net profit for year.	Amount due post fund from transportation.
	Construc- tion.	Other pur- poses.	Total.		
Eastern.....	.....	\$4,684.28	\$34,970.77	(a)	\$2,735.88
Northwestern.....	\$15.17	14,103.09	23,189.66	\$16,872.77	1,957.48
Marion.....	.....	1,959.04	16,564.61	7,997.37	198.79
Central.....	8,197.81	5,998.11	70,805.89	13,095.44	7,157.42
Southern.....	.....	6,369.63	39,327.32	2,605.46	3,074.32
Western.....	2,147.64	2,223.90	18,046.68	985.39	251.21
Pacific.....	5,040.78	1,939.04	12,085.52	9,434.38	.....
Total.....	15,401.40	37,277.09	214,990.45	50,990.81	15,375.10

Branch.	Beer hall.					System of check on business at—	
	Gallons of beer sold.	Cost of beer sold.	Receipts from sale of beer.	Amount sold for 5 cents (in pints).	Per cent of profit.	Home store.	Beer hall.
Eastern.....	61,168	\$12,820.45	\$34,748.05	1	171+	Cash register.....	System of checks.
Northwest- ern.	61,582½	11,813.20	27,472.70	1	132+	.....do.....	Cashier selling tickets to members on enter- ing. These can be ex- changed at bar for beer.
Marion.....	.....	.....	.....	.....	.....	.....do.....	.....
Central.....	204,832	29,705.00	81,932.80	1	175+	None.....	Tickets furnished cash- ier in books, who set- tles daily with treas- urer for those sold.
Southern...	107,200	19,934.05	43,636.05	1	118+	Cash register and dai- ly record of sales verified by treas- urer daily.	Sale of checks verified by treasurer daily.
Western.....	60,992	11,533.97	25,038.55	1	117+	Cash register. Daily record of sales taken up by the treas- urer's cashier and entered on a sale slip, and also in the post-fund cashbook.	Sale of checks or tickets by cashier of beer hall. Sales taken up daily by the treasurer's cashier, entered on sale slip, and recorded in post-fund cashbook. Settlement made with cashier of beer hall by post-fund clerk on the 15th and last day of the month, and bal- ance recorded.
Pacific.....	39,400	10,211.65	18,383.85	1½	124+	Careful personal at- tention on the part of the treasurer, in- cluding daily ac- countability for cash taken in.	Sale of checks verified by treasurer daily.
Total.	535,174½	96,018.32	231,212.00	.....	141—	.....	.....

a Loss of \$2,497.88.

REPORT OF THE SECRETARY OF WAR.

TABLE 19.—*Pension fund.*

Branch.	Pensioners June 30, 1898.			Amount of pen- sions paid for quarter ending June 30, 1898.	Pension money.			Amount of pen- sions paid to absentees during year.
	Num- ber on rolls.	Per cent of mem- ber- ship.	Pres- ent at Home.		Amount received during year.	Amount paid.			Balance due pen- sioners.
						In cur- rency.	By check.	
Eastern	2,332	88.7	1,744	\$70,907.18	\$277,998.55	\$184,270.14	\$122,756.67	\$10,857.62
Northwestern	2,434	87.4	1,993	81,367.55	307,103.53	197,634.12	109,729.37	17,679.61
Marion	1,896	87.0	1,250	64,255.86	246,178.34	176,912.39	68,553.72	2,203.86
Central	5,472	91.8	4,507	190,725.33	749,154.78	576,813.48	180,979.76	84,108.27
Southern	3,948	85.3	2,991	129,356.12	519,747.81	385,206.01	133,722.33	27,085.90
Western	2,921	85.5	2,115	96,344.63	375,768.10	257,293.90	121,424.14	9,838.53
Pacific	1,634	78.5	1,165	54,971.28	216,708.51	133,147.67	86,881.12	5,786.95
Total.....	20,637	87.6	15,765	687,927.95	2,692,659.62	1,911,277.71	824,047.11	157,560.74

Branch.	Pensioners on June 30, 1898, having to their credit—				Total pensioners having a balance to their credit.	Clerks on pension business.	
	Less than \$100.	Between \$100 and \$500.	Between \$500 and \$1,000.	Over \$1,000.		Number.	Annual salary.
Eastern	68	12	3	0	83	2	\$200
Northwestern	180	48	5	0	233	2	1,000
Marion	31	4	1	0	36	2	360
Central	351	140	22	3	516	5	1,980
Southern	103	35	7	3	208	2	900
Western	62	25	4	0	91	3	1,080
Pacific	104	11	1	0	116	1	900
Total.....	950	275	43	6	1,283	17	6,760

a Each.

TABLE 20.—*Number of pensioners at each rate on roll June 30, 1898.*

Branch.	\$6.00	\$7.00	\$7.50	\$8.00	\$8.50	\$9.00	\$9.75	\$10.00	\$10.50	\$10.75	\$11.00	\$11.25	\$12.00	\$12.50	\$12.75	\$13.00	\$13.25	\$13.50	\$14.00
Eastern.....	609	...	...	655	...	...	...	190	...	...	...	...	772	2	1	...	...	...	31
Northwestern.....	605	1	...	573	1	1	1	180	...	...	...	...	975	1	1	...	...	...	39
Marion.....	424	2	1	487	...	...	...	111	...	...	...	...	727	...	...	...	...	...	79
Central.....	1,160	2	1	1,158	2	1	...	283	...	...	2	1	2,503	2	...	1	...	...	93
Southern.....	920	1	1	861	1	2	1	209	2	1	2	...	1,686	...	...	4	1	...	59
Western.....	525	...	2	692	2	...	...	227	...	...	...	...	1,336	...	3	1	...	...	44
Pacific.....	368	...	1	375	2	...	...	103	...	...	...	1	726	1	...	...	...	...	21
Total.....	4,611	5	7	4,801	8	5	2	1,303	2	1	4	3	8,725	6	5	9	1	2	348

Branch.	\$14.50	\$15.00	\$16.00	\$16.75	\$17.00	\$17.50	\$18.00	\$18.50	\$18.75	\$20.00	\$22.00	\$22.50	\$24.00	\$25.00	\$27.00	\$30.00	\$36.00	\$45.00	\$50.00	\$72.00	Total.
Eastern.....	...	5	24	...	18	...	1	...	...	...	...	1	10	1	1	7	3	1	...	...	2,332
Northwestern.....	1	8	16	...	23	...	...	...	...	1	...	...	6	...	...	4	1	4	...	...	2,434
Marion.....	...	4	22	...	32	...	2	...	...	3	...	...	5	1	...	2	...	...	...	...	1,896
Central.....	...	10	51	...	78	...	4	...	...	10	4	...	43	3	1	41	10	4	...	3	5,472
Southern.....	...	1	11	55	...	31	1	1	1	8	4	...	43	2	2	21	9	2	...	3	3,948
Western.....	...	2	...	25	1	38	...	1	...	5	1	...	11	...	1	...	...	1	2	...	2,921
Pacific.....	...	4	13	...	14	...	2	...	...	2	...	...	1	...	...	...	...	...	...	...	1,634
Total.....	4	42	206	1	234	1	11	1	1	29	9	1	119	7	5	75	23	12	2	6	20,637

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1207

TABLE 21.—*Funds received—Recapitulation.*

Branch.	Amounts received during year from—				Amount received from sales during year and credited to—		
	General treasurer.	Post fund.	Post-humous sources.	Pension fund.	Current expenses.	Subsistence.	Clothing.
Eastern	\$255,947.50	\$67,171.83	\$2,651.12	\$277,998.55	\$2,755.47	\$5,410.68	\$2,437.79
Northwestern	257,300.00	45,340.05	7,035.78	307,103.53	41.10	3,146.38	1,755.77
Marion	172,434.00	82,167.46	2,363.85	246,178.34	.....	1,691.74	844.89
Central	531,575.00	145,496.64	18,517.80	749,154.78	701.41	12,872.75	3,587.76
Southern	307,505.00	77,985.41	5,153.54	519,747.81	2.29	7,433.25	1,068.01
Western	262,525.00	38,034.12	6,227.23	375,783.10	36.16	3,092.17	955.12
Pacific	205,100.00	29,389.12	2,709.75	216,708.51	.....	3,058.99	417.18
Total	1,992,386.50	485,584.63	44,659.13	2,692,659.62	3,536.43	36,705.96	11,066.52

Branch.	Amount received from sales during year and credited to—					Receipts from other sources.	Total receipts.
	Household.	Hospital.	Transportation.	Repairs.	Farm.		
Eastern	\$175.15	\$52.95	.....	\$745.82	\$957.74	.....	\$616,304.60
Northwestern	343.12	24.75	.....	591.71	1,114.79	.....	623,796.98
Marion	8.54	12.00	.....	12.75	130.25	.....	505,845.82
Central	1,231.86	223.20	.....	730.69	1,060.56	.....	1,465,752.45
Southern	1,474.35	76.90	\$4.50	26.07	907.31	\$50.55	921,134.99
Western	74.47	3.66	.....	902.95	187.60	.....	687,806.64
Pacific	137.69	41.99	18.80	141.98	547.37	.....	458,271.38
Total	3,445.18	435.45	23.80	3,151.97	5,205.62	50.55	5,278,910.86

TABLE 22.—*Quartermaster's department.*

Branch.	Reservation.		Barracks.				Basements used for—
	Acres in.	Acres leased.	Number.	Originally intended for—	At present occupied by—	Number having basement.	
Eastern	1,754	0	12	.....	.....	2	1 for subsistence stores, bake shop, and general wash room; 1 for billiard hall, card and smoking room.
Northwestern	382½	0	12	.....	1,900	6	For commissary, dormitory, and bathroom.
Marion	299½	120	12	1,320	1,426	12	1 for paint shop; 1 as carpenter shop; 1 as pipe shop; 1 by officers' and clerks' mess; 3 for quartermaster's storerooms.
Central	578	0	32	3,888	4,172	0	.....
Southern	26	43	19	.....	.....	3	Sleeping quarters.
Western	640	0	13	1,612	2,678	13	5 for storage; 8 for dormitories.
Pacific	630	0	8	800	1,513	8	4 for quartermaster's storehouses; others not used.
Total	4,309.73	103	108	7,620	11,689	44	.....

Branch.	Barracks.				Dormitory floor space per man (square feet).		
	Number of men now sleeping in—				Highest.	Lowest.	Average.
	Attics.	Basements.	On floors.	Other places.			
Eastern	75	0	138	290	60½	41½	51½
Northwestern	62	325	0	85	60	38	53½
Marion	125	0	0	28	80½	57	68½
Central	0	0	57	18	77	57	68
Southern	145	137	0	.....	117	42½	79½
Western	0	336	46	3	60	39.6	51.8
Pacific .....	.....	.....	.....	8	168.9	70.3	74.2
Total	407	798	241	432	168.9	38	51.4 to 79.76

TABLE 22.—*Quartermaster's department*—Continued.

Branch.	Barracks.											System of ventilation.
	Dormitory air space per man (cubic feet).			Dormitory window space per man (square feet).			Bath tubs.		Toilet rooms and urinals.			
	Highest.	Lowest.	Average.	Highest.	Lowest.	Average.	Number.	Average men to each.	Number.	Average men to each urinal.	Average men to each hopper.	
Eastern.....	726	350	526	10	4	7	290	60	60	90	45	Windows, large and numerous; also ventilators on roofs, chimneys, and open fireplaces.
Northwestern	906	372	639	15 $\frac{1}{2}$	2 $\frac{1}{2}$	7	39	60	...	40	21	Doors and windows.
Marion.....	948.5	697	822.2	17	11 $\frac{1}{2}$	14 $\frac{1}{2}$	30	55	144	16	16	Air flues, open fireplaces, and transoms.
Central.....	916	525	762	10.7	2 $\frac{1}{2}$	7.25	31	132	245	27	21.6	Doors and windows; ventilating flue in barrack 21.
Southern.....	1,039	320	679 $\frac{1}{2}$	14	4 $\frac{1}{2}$	9 $\frac{1}{2}$	47	69	115	112	21	Doors and windows and ventilators in rear of radiators.
Western.....	817	407	637	11.7	3 b	11.1c	26	82	65	34	19	Two large ventilation shafts in each barrack, with registers near floor and ceiling in each ward and in halls.
Pacific.....	1,296.4	822.9	916.8	17.8	4.93	11.4	22	59.7	102	22.25	44.5	Through open fireplaces and by registers near ceilings. There is also a system of floor registers connected to air shafts opening out above the roofs. Barrack H is provided with large openings in place of open fireplaces; also with ceiling ventilation.
Total.....	1,296.4	320	526 to 916.8	17.8	2.3	7 to 14.3	224	55 to 132	731	16 to 112	16 to 45	

Branch.	System of heating barracks.	System of lighting.	
		Barracks.	Hospital.
Eastern.....	Steam; mostly coils or circulation, with a few radiators.	Electricity.....	Electricity.
Northwestern	Steam.....	Gas, electricity, and oil (d)	Natural gas.
Marion.....	Open fireplaces and hot-air furnaces.	Natural gas.....	
Central.....	Steam.....	Gas and electricity.....	Electricity.
Southern.....	do.....	do.....	Gas.
Western.....	Steam radiators.....	Gas.....	Do.
Pacific.....	Steam heat, indirect radiation.	Electricity, incandescent.	Electricity, incandescent.

a In laundry building, second floor.
b For whole building.

c In basement.
d Not stated where each is used.

TABLE 22.—*Quartermaster's department*—Continued.

Branch.	System of lighting.		
	Other buildings.	Grounds.	Whence obtained.
Eastern.....	Electricity.....	Electricity.....	Furnished by the Augusta Light and Heat Co.—contract. Gas from Milwaukee City; electricity from boiler plant.
Northwestern .....	.....	.....
Marion	Natural gas.....	Natural gas.....	Gas wells driven on Home grounds.
Central	Gas and electricity....	Gas.....	Gas and electric light plant of Home.
Southern	do	do	Electricity from Hampton, Va.; gas from Home gas machine.
Western	Gas	Electricity	Gas from city works and electric light from Home plant.
Pacific	Electricity, incandescent.	Electricity, arc	Current generated in power house.

Branch.	Condition of beds, bedding, and lockers.	Beds.		Mattress.	
		Kind.	Size.	Kind.	Weight.
Eastern	Good	Iron cot bed with wire bottom.	6½ by 2½ feet	Cotton	<i>Pounds.</i> 14
Northwestern	do .....	.....	6½ by 2½ feet	do	13
Marion	do	Bedsteads with woven-wire mattresses.	6½ by 2½-6½ by 3 feet.	do	14, 23
Central	do	Iron beds with woven-wire mattresses.	6½ by 2½ feet	do	13½
Southern	do	Hospital and barrack.	6½ by 3-6½ by 2½ feet.	do	28, 17
Western	do	Iron	2½ by 6½ feet	do	8-17
Pacific	do	do	74 by 30½ inches	do	14

Branch.	Bedding.		Kind of lockers.
	Average supply per man.	Arrangements for cleanliness and airing.	
Eastern.....	3 gray woolen blankets, 3 sheets (linen), 1 cotton pillow, 2 slips, 1 counterpane.	Sheets and pillow slips washed weekly at laundry; blankets and counterpanes when necessary, and blankets aired frequently out of doors.	Commode—pine, walnut stained, 26 inches high, 27 inches wide, 14 inches deep. Common chests mostly used on account of crowded condition.
Northwestern	4 blankets, 3 sheets, 1 pillow, 2 slips, 1 counterpane.	Opened at 6 a. m.	Wood—3 feet high, 2 feet wide, 1 foot deep.
Marion	3 blankets, 3 sheets, 2 pillowcases, 1 counterpane, 1 mattress, 1 pillow.	Aired weekly, and general house cleaning twice a year.	Combination bookcase and writing desk 36½ by 24½ by 14 inches.
Central	3 blankets, 3 sheets, 1 mattress, 1 pillow, 2 pillowcases, 1 counterpane.	Bedding is aired out of doors, and washed when necessary.	Small cupboard, of two sizes.
Southern	1 mattress, 1 pillow, 3 blankets, 2 sheets, 2 pillowcases, 1 counterpane.	Sheets, pillowcases, and counterpanes washed weekly, and blankets when required; other articles aired when necessary.	Plain wood, varnished or painted, 2 feet 6 inches high, 2 feet wide, 15 inches deep, with hinged door, 2 shelves inside.
Western	1 mattress, 3 sheets, 1 pillow, 2 pillow slips, 3 blankets, 1 counterpane.	Each man required to air his bedding and keep his bed clean.	3 by 2 by 1 foot, with two shelves and 1 drawer.
Pacific.....	1 mattress, 1 pillow, 3 blankets, 2 sheets, 1 pillowcase.	Linen changed weekly. Blankets aired daily and frequently washed.	Redwood, stained and varnished, 3 feet high, 2 feet wide, 1 foot deep. One drawer. One shelf dividing it into 2 compartments.

TABLE 22.—*Quartermaster's department*—Continued.

Branch.	Storehouses.			Other places in which quartermaster supplies are stored.	Subsistence supplies stored, where.	Medical supplies stored, where.
	Number.	Condition.	Sufficient capacity.			
Eastern.....	2	Good.....	No.....	Room in brick building rear of quartermaster's office; in cellar of Company D; also in old baggage room.		In hospital building in storeroom in charge of quartermaster.
Northwestern.	4	do.....	Yes.....	None.....	Basements.....	Basement of hospital.
Marion.....	1	do.....	No.....	In part of three basements under barracks.		In storeroom in basement under hospital.
Central.....	3	do.....	No.....	Barrack cellars, lumber and coal sheds, etc.	Property building, root cellar at garden, and temporarily in cellar of barrack No. 14.	Property building and hospital.
Southern....	1	Fair.....	No.....	Lower floor of barrack building, No. 50; in cellar under Home store; theater building, No. 32; cellar, Company L, No. 44.	Brick commissary storehouse, No. 31.	In basement under hospital.
Western.....	0			In basements of barracks and in two rooms near boiler house.	Basement of dining hall.	In room in basement of hospital.
Pacific.....	0			All stored in basements excepting paints and oils, which are in paint shop.	Basement under dining hall.	In room partitioned off from quartermaster's storeroom.

Branch.	Value of quartermaster's stores (current supplies) on hand June 30, 1898.	Inventories—how often taken.	Inventory value of property received from depot.	Invoice value of property received during year.			System of property accountability.
				From general depot.	By purchase.	By transfer.	
Eastern....	\$5,709.81	Quarterly and annually.	\$2,406.23	\$28,821.71	\$179,713.90	\$966.27	Taken up on property books after inspection and acceptance, and issued by the quartermaster upon proper requisitions, signed by the head of the department where the stores are needed, certified to by the quartermaster and approved by the governor, and the requisition filed as a voucher.
Northwestern.	11,010.45	Annually.	23,403.44	23,403.44	190,966.13	1,545.78	General property books, individual book; condemnation by inspector and board of survey.
Marion....	4,762.43	Monthly..	25,773.81	23,446.26	113,263.26	578.77	Head of each department receipts to the treasurer for all property in his care. Issues are made on requisitions approved by the governor. Lost or destroyed property is submitted quarterly to a board of survey. Imperishable property is acted on by the inspector-general of the National Home or his assistant.

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1211

TABLE 22.—*Quartermaster's department*—Continued.

Branch.	Value of quartermaster's stores (current supplies) on hand June 30, 1898.	Inventories—how often taken.	Inventory value of property received from depot.	Invoice value of property received during year.			System of property accountability.
				From general depot.	By purchase.	By transfer.	
Central	\$23,128.72	Quarterly and annually.	\$55,896.59	\$55,956.59	\$357,698.11	\$2,499.80	Purchased property is inspected on arrival by an officer appointed by the governor, after which an abstract of receipts is made up and the accounts charged accordingly. Property transferred to the Branch by general depot or other Branches is taken up and receipted for by the quartermaster as per the invoice furnished with the goods so received. Issues of property made only on regular requisition bearing approval of the governor, and issues of imperishable property are charged in book to the various responsible officials. Worn-out property is held by the quartermaster until condemned. Lost or destroyed property is cared for through action of board of survey.
Southern				30,624.57	51,552.49	760.09	Received and taken up on approved inspection report. Issued on approved requisitions. Lost property submitted to board of survey, which report is submitted to inspector for action. Unserviceable property condemned by inspector-general.
Western	7,039.65	Semi-annually.	24,065.24	25,065.24	172,367.13	2,860.12	
Pacific	8,935.00	Annually.	14,993.23	15,704.20	120,700.19		Property when received is taken up on property books, after proper inspection, and is issued on requisitions approved by the governor. Lost and destroyed property is accounted for by the action of board of survey. Worn-out property accumulates until acted upon by inspector-general, National Home for Disabled Volunteer Soldiers.
Total.	51,651.06		146,538.54	203,022.01	1,186,261.21	3,210.83	

TABLE 22.—*Quartermaster's department*—Continued.

Branch.	Unserviceable property.				Rags and clippings.		Receipts from sale of other parts of uniform when through wearing.
	How disposed of.	Value of, condemned during year.	Articles condemned.	Receipts from sale of condemned property.	Price per pound obtained.	Receipts from sale of rags.	
Eastern.....	Inspected by inspector, National Home for Disabled Volunteer Soldiers, condemned and disposed of as directed.	\$4,389.29	36,323	\$568.88	<i>Cents.</i> 6 2½	\$2,229.93	.....
Northwestern.....	By condemnation.....	29,755.89	62,022	2,326.22	a 5	1,546.52	.....
Marion.....	Inspected by inspector, National Home for Disabled Volunteer Soldiers, condemned and disposed of as directed.	3,525.19	20,338½	673.27	6	657.92	.....
Central.....	By condemnation and sale or destruction.	55,287.34	114,572	3,682.81	a 6½	3,155.84	\$42.06
Southern.....	Condemned, sold, and destroyed.	29,828.64	52,129	1,186.04	½-12	793.61	.....
Western.....	Condemnation and sale, or destruction by fire, as directed by inspecting officer.	22,556.14	16,257	753.07	½	220.02	.....
Pacific.....							
Total.....		145,342.49	301,641½	9,190.29	½-12	8,603.84	42.06

Branch.	Value of clothing—					
	On hand July 1, 1897.	Received from depot during year.	Received from other places.	Issued during year.	Inspected and condemned.	On hand June 30, 1898.
Eastern.....	\$9,823.17	\$21,415.48	.....	\$24,963.79	\$21,966.76	\$6,374.86
Northwestern.....	11,577.63	20,874.48	.....	24,743.01	23,041.09	.....
Marion.....	6,961.70	22,396.53	\$2,473.33	22,164.89	1,107.92	9,666.67
Central.....	22,101.00	47,314.05	4,096.90	56,035.31	40,641.19	17,476.64
Southern.....	.....	.....	.....	.....	.....	.....
Western.....	11,151.30	22,776.62	14.00	29,017.76	23,357.65	4,924.16
Pacific.....	50,747.56	13,596.10	20,518.10	19,456.18	43,825.56
Total.....	172,362.36	147,878.26	6,564.23	177,342.86	149,570.79	82,267.89

a Average.

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TABLE 22.—*Quartermaster's department*—Continued.

Branch.	Has quarter- master a memoran- dum re- ceipt from officers and oth- ers for property continu- ously in their pos- session?	Is all property and furniture belonging to the Home marked and taken up as public property?	To whom and how often is return made for prop- erty received from the general depot?	To whom and how often is return made for all other property received by purchase or otherwise?
Eastern.....	No <i>a</i>	Not all marked, but all taken up on property books un- der various heads and kinds of stores.	On receipt of supplies they are inspected by committee appointed by the governor, inspec- tion report containing each item, as per in- voice, and the report forwarded to office of president Board of Man- agers. Receipt signed and forwarded to gen- eral depot.	No return made. Tak- en up and accounted for on property books.
Northwestern .	Yes.....	All taken up, partly marked. <i>b</i>	President Board of Man- agers, quarterly.	None.
Marion	Yes.....	Taken up, but not all of it marked. <i>c</i>	President of Board of Managers, National Home for Disabled Vol- unteer Soldiers, as often as property is received.	To governor of Home when received, and to president of Board of Managers, Na- tional Home for Dis- abled Volunteer Sol- diers, quarterly.
Central	Yes.....	Yes.....	To Branch treasurer im- mediately upon its re- ceipt.	To Branch treasurer immediately upon its receipt.
Southern	Yes.....	Partially.....	Reported to office Board of Managers within a few days after receipt.	None made, only for clothing, etc., re- ceived from general depot.
Western.....	Yes.....	As nearly as possible .	To president of Board of Managers, quarterly.	Inventories made semi-annually, and monthly returns made to governor.
Pacific	Yes.....	All taken up as pub- lic property. Fur- niture not marked, but all other prop- erty is marked as far as practicable.	To general treasurer, quarterly.	None rendered.

A record is kept by each Branch (except the Eastern) of amount expended on each building.

a Unless the requisition made by them, certified to by the quartermaster and approved by the gov-
ernor, can be considered as such.

b Has 2 horses, not public and authorized.

c Has 1 cow, not public and authorized.

TABLE 23.—Laundry.

Branch.	Average pieces laundered per month.	Number of employees.	Expenses for laundry work during year—		Pounds of soap made.		
			At Home for labor and material.	Work done outside.	Hard.	Soft.	Hard.
Eastern	48,411	14	\$2,116.00	\$32.50	3,878	741	\$0.00
Northwestern	75,227	16	2,163.90	.....	2	319,040	.....
Marion	10,836	20	3,293.71	.....	0	99,356	.....
Central	113,789	44	5,762.70	.....	0	0	.....
Southern	53,707	15	2,069.85	.....	13,847	36,416	.....
Western	58,344	18	1,769.20	225.88	0	180,450	.....
Pacific	34,862	12	2,438.70	418.17	0	420,000	.....
Total	395,176	139	19,614.06	676.55	17,725	1,055,997	.....

Branch.	Regulations governing the sending of clothes to the laundry.	How much labor is per sent.
Eastern	Clothing sent weekly from each company in charge of ward master, with list verified by foreman of laundry, signed, and laundrymen held responsible for the return of the same number of pieces to each company.	1 shirt, 1 pair of drawers, 1 pair of socks, 1 pair of undershirts, 1 pair of other clothing as necessary.
Northwestern	Clothing sent at specified times in charge of authorized men with duplicate lists, which are verified by count; receipts given.	1 shirt, 1 pair of drawers, 1 pair of socks, 1 pair of other clothing as necessary.
Marion	Certain days appointed for sending clothes from each company and the hospital.	No fixed amount; as needed.
Central	Soiled clothing is put in bundles in barracks and sent to laundry on Monday morning.	1 set undergarments; 1 pair of socks; 1 pair of drawers; 1 pair of other clothing as needed.
Southern	Clothes from hospital are sent in bulk, and are returned assorted by wards. Members not in hospital carry to laundry and call for their own garments, a laundry number having been affixed to each article, the numbers being furnished by the laundry.	3 pieces. No limit on occasions more.
Western	Delivered to laundry on Mondays and returned on Thursdays and Fridays. Receipts given and taken.	Whatever bedding and clothing is necessary, washed.
Pacific	Clothing and bedding are collected weekly by room orderlies, counted and hauled to the laundry. After being washed it is returned to companies and distributed by wards.	No limitation.

a Per barrel. *b* Soft; barrels. *c* Hard; barrels. *d* Soft. *e* Chip.

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TABLE 24.—*Fire department.*

Branch.	Protection against fire.	Apparatus adequate and in good condition.	How often tested.	When last tested.
Eastern.....	Very good; 12 hydrants, with sufficient quantity of hose, supplied from Augusta Water Co., 60 pounds or more pressure during night; also, in each barrack, standpipes, hose, chemical pails, etc.	Appears so	Monthly or oftener.	.....
Northwestern ..	27 hydrants, 1 fire engine, with 2½-inch hose and 2 fire pumps; also standpipes with hose in buildings; fire extinguishers and fire buckets. Fire-alarm connected with city fire department.	Yes.....	Monthly	Aug. 11, 1898
Marion	Steel standpipe, 125 feet high and 18 feet in diameter, holding 238,000 gallons of water, and kept always full.	Yes.....	Large hose every 30 days; small hose every 90 days.	(a)
Central.....	Each barrack has a 50-foot hose line on each floor; a fire engine, ladder truck, and 4 hose reels at fire-department station; 1 hose reel at laundry; 1 hose reel at hospital, and standpipe, with 65 pounds pressure.	Yes.....	Weekly.....	Sept. 3, 1898
Southern	One steam fire engine and buckets and hose in barracks.	Yes.....	Trimonthly.....	Sept. 10, 1898
Western.....	Fire plugs at convenient places to command the building, with 4,000 feet of fire hose; 2,750 feet fire hose, together with 26 fire extinguishers, and fire buckets ready filled, in the buildings.	Some hose partially unserviceable from long use.	Two men are employed to examine, test, and clean the fire hose.	Sept., 1898
Pacific.....	Fire hydrants, fire hose, hand grenades, Force fire pails, and ordinary pails for water.	In good condition, but not adequate.	Every 30 days.....	Sept. 12, 1898

Branch.	What fire organization or companies.	What fires during year.	What loss by fire. ^a
Eastern.....	A fire organization of 12 men.....	None	None.
Northwestern ..	Regular fire department; standpipes and fire buckets; hose on floors manned by an auxiliary force.	Convalescent Co., Oct. 19, 1897. Band quarters, Oct. 31, 1897. Main building annex, Dec. 10, 1897.	\$1,500 15,000 7,500
Marion	Volunteer company of 16 members, who meet every Saturday.	None	None.
Central.....	Entire force of engineer department, 72 men, under chief engineer, as an active company.	1 in tunnel, July 5, 1897	None.
Southern	One steam fire company of 20 members.....	None	None.
Western.....	40 civilian employees, instructed in the use of the hose, under chief engineer, respond to all alarms. Members also instructed to some extent.	1.....	None.
Pacific.....	Local organization in each company and civilian employees; in all, about 125 men.	None	None.

^a Certain portion of the hose is tested on Saturday afternoon of each week.

TABLE 25.—*Engineer depart*

Branch.	Average employees during year.		System of wa
	Members.	Civilians.	
Eastern.....	a 27	.....	Augusta Water Co.....
Northwestern ..	36	7	Milwaukee City Water W
Marion	36	3	Standpipe pressure; the su
			seven gravel wells, 87 fee
			feet deep.
Central.....	62	12	Pumping and standpipe sy
Southern .....	.....	.....	Newport News Water Co
			water for flushing.
Western.....	63	14	Leavenworth City Water
Pacific.....	23	9	500,000 gallons daily suppli
			Water Co., also about 2
			Mandeville Canyon.
Total	247	45	

Branch.	System of drainage and sewerage.	Con- dition.	S	
			Num- ber.	el
Eastern.....	Each building or barrack connected with main sewer, which runs into a stream flowing into the Kennebec River.	.....	12	Q
Northwestern ..	Intercepting .....	.....	13	..
Marion	Sewage carried off through a 10-inch vitrified pipe to the Mississinewa River, a distance of 4,000 feet.	Good .	5	..
Central	Gravity system	do .	3	..
Southern	Gravity and pumping.....	.....	1	..
Western.....	Covered sewers of 10 and 12 inch vitrified pipe emptying into the Missouri River; surface drainage through 12 and 24 inch vitrified sewer pipe to river.	.....	4	..
Pacific.....	Four separate lines of 6-inch vitrified sewer pipe, with terminals concentrated to empty on a piece of sandy and gravelly land suitable for cultivation. Sewage has been used for irrigation in vegetable garden. Drains of 6-inch vitrified pipe carry water from the roofs to a short distance from the buildings. No surface drainage or guttering of importance has been done.	.....	8	..
Total ....	.....	.....	46	

a Not specified as to how many of

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1217

TABLE 25.—*Engineer department—Continued.*

Branch.	Of what does steam plant consist?	For what purposes used?	Cost of steam plant.	Cost of maintenance for past year.	Cost of maintenance per horsepower.	Cubic feet of air space to be heated.
Eastern	6 40-horsepower boilers in main boiler-room. 1 25-horsepower boiler at opera house. 2 low-pressure boilers in hospital. 1 high-pressure 40-horsepower boiler in convalescent ward of hospital. 9 low-pressure boilers, small, located in quarters of treasurer, surgeon, quartermaster, engineer, governor's clerk, nurses, headquarters building, and in barracks of Companies G and M.	Heating, cooking, hot water, and power. Heats opera house, chapel, and club-house. For heating hospital. For heating	\$5,600.00	\$23,304.00	\$40.78	No date.
Northwestern	2 Babcock & Wilcox water tube and 5 tubular boilers.	Heating all public buildings, cooking, and heating water; running engines, elevator, dynamos, and pumps.	35,000.00	17,850.00	22.31	4,155,759
Marion	No steam plant for heating purposes, but 20 high-pressure steam boilers in use for other purposes.	Pumping water, etc.		1,655.53	3.90	
Central	29 high-pressure boilers.	Heating all buildings, cooking, power for shops, pumping station, gas and electric light and ice plants.	103,000.00	65,000.00	31.00	7,465,988
Southern	13 70-horsepower boilers, 2 100-horsepower boilers, and boiler house.	Power, cooking, and heating.	40,000.00	23,349.97	111.10	3,654,604
Western	2 200-horsepower and 4 300-horsepower boilers.	Heating barracks, hospital, officers' quarters, green-houses, cooking, electric light power, laundry, and engineer-shop machinery.	24,324.00	20,390.00	25.48	3,173,441
Pacific	5 50-horsepower horizontal boilers, tubular; 1 100-horsepower Stirling water-tube boiler; 1 200-horsepower Stirling water-tube boiler; 1 40-horsepower boiler, horizontal, tubular, not now in use; 1 25-horsepower boiler, locomotive fire box, not now in use.	Heating buildings, heating water, furnishing steam to main kitchen, hospital kitchen, laundry, electric light plant, etc.	12,425.00	23,237.85		
Total			220,349.00	174,787.35	3.90 to 111.10	18,449,792

TABLE 25.—*Engineer department.*

Branch.	Of what does lighting plant consist?	Cost of lighting plant.
Eastern.....	Light furnished by Augusta Heat and Light Co.	.....
Northwestern ..	2 Edison dynamos, 1 75-horsepower engine.	\$4,400.00
Marion	None .....	.....
Central	Electric and gas works	54,000.00
Southern	Maxim gas machine	10,000.00
Western.....	1 engine, 1 dynamo, shafting, etc ..	7,147.00
Pacific.....	1 55 kilowatts direct-connected dynamo and engine. 1 20 kilowatts belted dynamo, lamps, and fixtures—overhead wiring.	10,500.00
Total.....	.....	\$8,047.00

Branch.	Of what does cold-storage and ice plant consist?	Cubic feet of air space cooled.	Cost of plant.
Eastern	None. ^b	.....	.....
Northwestern	Meat, milk, and butter rooms, and ice house.	20,496	.....
Marion	None.	.....	.....
Central	single-acting refrigerating and ice-making machine, including Corliss engine, 2 single-acting ammonia compressing pumps, freezing tank, containing 168 cans, and the necessary machinery for providing distilled water for making ice. There are 7 cold-storage rooms.	34,000	\$29,000.00
Southern	1 6-ton ice-making machine.	15,000	13,000.00
Western.....	None.	.....	.....
Pacific.....	An ammonia compressor, direct-connected, 1 ice tank, 4 cooling rooms, 1 brine-circulating pump, pipe coils and condenser.	12,480	7,435.00
Total.....	81,976	49,435.00

^a Contract price.^b Natural ice harvested from pond on 1

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TABLE 26.—Commissary department.

Branch.	Storehouses.			Any articles deteriorated on account of storage?	Value of subsistence stores on hand June 30, 1898.	How often are inventories taken?	Unserviceable property.		
	Number.	Condition.	Sufficient capacity?				Value of, condemned during year.	Number of articles condemned.	Receipts from sale of condemned property.
Eastern.....	(a)	Fair.....	Yes.	No....	\$4,156.49	Monthly..	\$728.55	8,005	.....
Northwestern.....	3	Good.....	Yes.	No....	4,128.50	Quarterly	.....	.....	\$130.35
Marion.....	1	do.....	Yes.	No....	1,067.35	do.....	221.19	1,132	.....
Central.....	2	do.....	Yes.	No....	8,221.56	do.....	.....	.....	.....
Southern.....	1	do.....	Yes.	(b)	6,069.14	Monthly..	1,453.83	19,362	.....
Western.....	1	do.....	Yes.	(c)	6,185.41	do.....	1,071.47	11,083	.....
Pacific.....	0	do.....	Yes.	No....	2,082.47	do.....	409.42	5,877	.....
Total.....	8	.....	.....	.....	31,912.92	.....	3,884.46	45,459	130.35

Branch.	Condition of—		Capacity of dining hall.	How many times are tables set for each meal?
	Dining hall.	Kitchen.		
Eastern.....	Excellent...	Good.....	1,424	Twice.
Northwestern.....	do.....	do.....	960	Do.
Marion.....	do.....	do.....	1,072	Do.
Central.....	do.....	do.....	2,044	Do.
Southern.....	do.....	do.....	1,144	Twice, and from 3 to 8 tables third time, depending on number of members present.
Western.....	do.....	do.....	1,080	Twice.
Pacific.....	do.....	Fair.....	560	All twice and several of them three times.
Total.....	.....	.....	8,284	.....

Branch.	How often are dining hall and kitchen inspected by—		Facilities ample for receiving and taking care of supplies, and for cooking and serving meals?	Average permanent employees.		Average temporarily detailed.
	Surgeon?	What other officers?		In kitchen.	In dining hall.	
Eastern.....	Weekly.....	Governor and treasurer weekly; by quartermaster and commissary of subsistence almost daily.	Nearly so...	21	43	17
Northwestern.....	Frequently.....	Daily by commissary and officer of the day; frequently on Sundays by governor and inspecting officers.	Yes.....	13	34	53
Marion.....	Monthly.....	Governor, at least once a week.	Yes.....	24	14	84
Central.....	Occasionally.....	Governor, commissary of subsistence, and inspector.	Yes.....	62	89	210
Southern.....	Not inspected by surgeon.	Governor frequently; the quartermaster and commissary regularly every Sunday and frequently during week.	Yes.....	36	29	.....
Western.....	No stated times...	Weekly by quartermaster and commissary of subsistence, the governor, and the Home inspector.	Yes.....	16	15	71
Pacific.....	Noregular inspection by the surgeon.	Nearly every day by the governor and commissary of subsistence.	Not for receiving meats.	22	4	76
Total.....	.....	.....	.....	194	228	511

a Three cellars or basements used.

b Forty-seven pounds smoking tobacco moldy from damp climate.

c Six hundred and eighty pounds of codfish.

TABLE 26a.—Commissary department—Is

Branch.	Daily average for December, 1897.			Daily average for June 1898.		
	Amount issued.	Cost.	Members present in barracks.	Amount issued.	Cost.	Members present in barracks.
	<i>Pounds.</i>			<i>Pounds.</i>		
Eastern	6,035	\$282.03	1,700	5,880	\$269.14	1,680
Northwestern	7,896.63	243.01	2,201	7,487.60	233.06	1,964
Marion	5,484.83	227.10	1,622.35	4,532.80	183.94	1,303.
Central	14,949	547.21	4,288	15,455	567.12	4,169
Southern	8,095	425.20	3,476	7,915	405.86	3,261
Western	7,885	277.80	2,262	7,494	265.50	2,200
Pacific	5,472	207.81	1,363	5,210	191.84	1,284
Total ..	55,817.46	2,210.16	6,912.35	53,983.40	2,116.46	15,861.

TABLE 26b.—Commissary department—

Branch.	Daily average for December, 1897.			Daily average for June 1898.		
	Amount issued.	Cost.	Members present in hospital.	Amount issued.	Cost.	Members present in hospital.
	<i>Pounds.</i>			<i>Pounds.</i>		
Eastern	1,695	\$65.86	397	1,750	\$64.88	405
Northwestern	2,160	74.53	433	2,357	70.14	422
Marion	1,314.75	54.47	250.87	1,103.76	45.09	226.
Central	5,070	121.56	794	5,176	116.36	675
Southern	1,890	103.38	559	1,406	105.19	520
Western	1,399	67.44	363	1,587	59.59	321
Pacific	1,018	47.23	285	1,523	52.48	283
Total	14,542.75	534.47	3,081.87	14,902.76	513.73	2,852.

TABLE 26c.—Commissary Department

Branch.	Per cent of breakage					
	Bowls, coffee.	Bottles, vinegar.	Bottles, pepper.	Cups, coffee.	Dishes, vegetable.	Pills, sir.
Eastern	42.2	18.5	0.21	0.21	46.2	26.
Northwestern	15	.011	.004	.05	.08	
Marion	53	15	11		19	17
Central	82	29	49	33	52	9
Southern	58.2			85.1	72	21.
Western (a)						
Pacific	90	5	1.25	2.5	29.5	3

Branch.	Per cent of breakage				
	Plates, cheese.	Plates, dinner.	Plates, soup.	Platters, meat.	Pots, bean.
Eastern	0.75	53.2	31.9	23.8	
Northwestern .....		.03	.07	.06	
Marion	19	33	15	24	
Central	18	61	89	25	
Southern	31.4	52.3	22.7	32.2	10.7
Western (a)					
Pacific	23.5	90	65	5	

a Average is about 40 per cent, largest in coffee box

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TABLE 26d.—Commissary Department.

Branch.	Meals given transients not connected officially with Home.		Swill and garbage.				Outdoor relief.		
	Number.	Usually under what requirements or occasion.	Disposition.	Estimated amount per month.	If sold, what price is obtained.	Receipts from this source for year.	Members receiving in subsistence.	In other allowances.	Average monthly cost per man.
Eastern.....	0	To veteran soldiers not members of Home. Relatives of deceased members attending their funeral and to disabled soldiers not entitled to admission.	Sold.....	Pounds.	b \$0.10	\$240.25	0	0	.....
Northwestern	320		(One-half sold, balance used on Home farm.	(a) c 15	d 20.00	240.00	.....	.....	.....
Marion.....	188		Given away for the hauling.	e 5	.....	.....	28	28	\$5.20
Central.....	0	(f)	Sold to highest bidder.	177,536	390.22	4,682.68	0	0	.....
Southern...	(f)		Fed to hogs and pigs at Home farm; balance sold.	80,080	b .30	560.10	5	0	4.76
Western.....	0		Given away to be hauled off Home grounds.	60,000	.....	.....	0	0	.....
Pacific.....	(f)	Indigent soldiers ineligible for admission or visiting members.	Fed to stock on farm.	18,000	(g)	(g)	0	0	.....
Total.....	.....	.....	.....	.....	.....	.....	33	28	5.13

a Eight or 10 barrels per day.

b Per barrel.

c Tons per month.

d Per month.

e Tons.

f So few that no record is kept.

g Not sold. Farm charged \$20 per month.

TABLE 27.—Principal articles o

Branch.	Contract price (per pound) for quar					
	Flour.	Fresh beef.	Corned beef.	Coffee.	Tea.	Baco
Eastern.....	<i>a</i> \$2.91	\$.0834	\$.0875	\$.0875	\$.25	\$.07
Northwestern ..	2.58	.0618	.....	.11875	.21	.07
Central .....	.024	.0637	.....	.10	.29½	.06
Marion .....	.0235	.0610	.....	.....	.....	.....
Marion	4.80	.0690	.0675	.1398	.25	.08
Southern .....	.0706	.....	.....	.....	.....	.....
Southern	<i>c</i> .02857	.0645	.0390	.0875	<i>d</i> .30	.07
Western	<i>f</i> 2.34	.0632½	.06	.14	<i>e</i> .29½	.08
Pacific	<i>g</i> 2.09	.0821	.....	.0987	.2655	.10
Pacific .....	.02775	.....	.....	.....	.....	.....
Average ..	.023	.0688	.0585	.1103	.2724	.07

Branch.	Contract price (per pound) for quar					
	Fresh mack-erel.	Navy beans.	Lima beans.	Ham.	Butter or oleo-margarine.	Siru (gallo)
Eastern.....	.....	<i>b</i> \$1.91	\$.055	\$.0773	\$.13	\$.02
Northwestern ..	.....	.0133	.02625	.0755	.155	.1
Central	\$.0792	.0125	.....	.0735	.0863	.2
Marion .....	.0825	.0139	.....	.0790	.1032	.2
Southern .....	.0674	.02½	.0275	.0875	.1073	.2
Western .....	.....	.02	.0275	.06½	.1032	A.3
Pacific .....	.....	.0149	.02	.....	.19	A.3
Average ..	.0797	.0156	.0257	1.079	.1264	.2

a Per barrel.*d* Young Hyson.*b* Per bushel.*e* Oolong.*c* Per pound.*f* No. 1, per hundredweight.

Branch.	Amount (pounds) purchased during q					
	Flour.	Fresh beef.	Corned beef.	Coffee.	Tea.	Baco
Eastern	106,820	38,617	29,176	13,251½	1,608	6,5
Northwestern ..	94,080	100,000	.....	15,000	1,200	12,0
Central	203,300	303,706	.....	29,353	2,831	5,9
Marion	<i>d</i> 425	48,000	16,000	9,500	900	5,3
Southern	182,672	166,104	30,500	20,478½	<i>e</i> 1,218	8,0
Western	85,000	121,000	9,900	15,400	<i>f</i> 1,253	5,6
Pacific	70,000	60,000	.....	4,500	5,000	7,0
Total	825,172	835,427	84,576	107,482½	15,006	50,4

Branch.	Amount (pounds) purchased during q					
	Fresh mack-erel.	Navy beans.	Lima beans.	Ham.	Butter or oleo-margarine.	Siru (gallo)
Eastern.....	.....	<i>a</i> 8,767	<i>b</i> 275	10,232	21,358	5
Northwestern ..	.....	4,500	2,500	13,000	16,000	1½
Central	<i>c</i> 2,000	113,850	.....	45,035	44,400	4½
Marion	19,500	6,000	.....	10,000	15,000	2
Southern	6,000	.....	2,565	3,046	30,552	2
Western	18,000	10,000	750	4,400	20,000	<i>g</i> 1½
Pacific .....	.....	2,023	1,826	.....	8,000	<i>g</i> 1½
Total	45,500	85,713	155,308	1,8

a Bushels. *b* Dozen. *c* Mackerel (salt). *d* Barrels. *e* You

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TABLE 27a.—Principal articles of food—Places of purchase for quarter ending June 30, 1898.

Articles.	Eastern Branch.	Northwestern Branch.	Marion Branch.	Central Branch.
Flour.....	Auburn, Me.....	Milwaukee, Wis..	Marion, Ind.....	Fort Wayne, Ind.
Fresh beef.....	Augusta, Me.....	Chicago, Ill.....	do.....	Chicago, Ill.
Corned beef.....	do.....	do.....	Chicago, Ill.....	Dayton, Ohio.
Coffee.....	Boston, Mass.....	Milwaukee, Wis..	Marion, Ind.....	New York City.
Tea.....	do.....	do.....	do.....	Dayton, Ohio.
Bacon.....	New York, N. Y.....	do.....	Chicago, Ill.....	Chicago, Ill.
Salt pork.....	Gardiner, Me.....	Cudahy, Wis.....	Kansas City, Mo.....	Sheridan, Wis.
Potatoes.....	do.....	Sheridan, Wis.....	Sheridan, Wis.....	Buffalo, N. Y.
Fresh fish.....	Boston, Mass.....	Milwaukee, Wis..	Chicago, Ill.....	Gloucester, Mass.
Codfish.....	Portland, Me.....	do.....	Gloucester, Mass.....	Do.
Mackerel, fresh.....	Gloucester, Mass.....	do.....	Boston, Mass.....	Dayton, Ohio.
Beans, navy.....	Portland, Me.....	do.....	Marion, Ind.....	Dayton, Ohio.
Beans, lima.....	do.....	do.....	do.....	Kansas City, Mo.
Ham.....	Boston, Mass.....	do.....	Dayton, Ohio.....	Dayton, Ohio.
Butter.....	do.....	do.....	Kansas City, Mo.....	Dayton, Ohio.
Sirup.....	Portland, Me.....	do.....	Marion, Ind.....	Chicago, Ill.
Cheese.....	Boston, Mass.....	do.....	Chicago, Ill.....	Greenville, Ohio.
Sugar, A.....	do.....	do.....	Marion, Ind.....	Do.
Sugar, C.....	New York, N. Y.....	do.....	do.....	Dayton, Ohio.
Sugar, granulated.....	Auburn, Me.....	Milwaukee, Wis..	Marion, Ind.....	

Articles.	Southern Branch.	Western Branch.	Pacific Branch.
Flour.....	Fort Wayne, Ind.....	Leavenworth, Kans.....	Los Angeles, Cal.
Fresh beef.....	Norfolk, Va.....	Omaha, Nebr.....	Do.
Corned beef.....	do.....	do.....	Do.
Coffee.....	New York.....	Leavenworth, Kans.....	Do.
Tea.....	Richmond, Va.....	Kansas City, Mo.....	Do.
Bacon.....	Baltimore, Md.....	do.....	Do.
Salt pork.....	Kansas City, Mo.....	Omaha, Nebr.....	Do.
Potatoes.....	Hampton, Va.....	Leavenworth, Kans.....	Do.
Fresh fish.....	do.....	do.....	Do.
Codfish.....	Boston, Mass.....	do.....	Do.
Mackerel, fresh.....	New York.....	do.....	Do.
Beans, navy.....	do.....	Leavenworth, Kans.....	Do.
Beans, lima.....	New York.....	do.....	Do.
Ham.....	Baltimore, Md.....	Omaha, Nebr.....	Do.
Butter.....	Kansas City, Mo.....	Kansas City, Mo.....	Do.
Sirup.....	New York.....	Topeka, Kans.....	Do.
Cheese.....	Baltimore, Md.....	Chicago, Ill.....	Do.
Sugar, A.....	Richmond, Va.....	do.....	Do.
Sugar, C.....	do.....	Leavenworth, Kans.....	Do.
Sugar, granulated.....	do.....	do.....	Do.

TABLE 28.—Medical department.

Branch.	Capacity for patients.		Patients.									
			June 30, 1897.			June 30, 1898.			Average daily.			Total patients treated during year.
	Hospital.	Quarters for convalescents.	Hospital.	Convalescent companies.	Barracks.	Hospital.	Convalescent companies.	Barracks.	Hospital.	Convalescent companies.	Barracks.	
Eastern.....	288	40	250	35	(a)	280	39	(a)	273	38	(a)	2,680 43
Northwestern.....	200	112	149	111	0	180	105	0	161	85	0	4,410 47
Marion.....	215	6 90	181	46	0	168	85	2	191.26	77.78	2.15	2,854 124
Central.....	650	335	552	354	0	506	310	0	566	302	0	6,354 15
Southern.....	450	274	410	224	59	402	254	56	441	225	58	2,885 5.5
Western.....	198	152	160	92	37	158	142	33	184.20	132.50	46.24	3,770 35
Pacific.....	146	c 23	186	29	0	182	20	0	193.50	22.30	0	2,649 22.71
Total.....	2,147	1,026	1,888	891	96	1,876	955	91	2,009.96	882.58	.....	25,602.....

a Sick-call cases only.

b Beds.

c Excluding attic.

TABLE 28.—*Medical department—C*

Branch.	Principal diseases and percentage of each to who		
	Chronic.	Acute.	
Eastern....	Valvular and other organic lesions of heart, 17; nervous system, 7.3; pulmonary, 8.2; alimentary, 9; senility, 8.3; arterio-sclerosis, 5.1.	Alcoholism, 3.7; pulmonary, 1.8; alimentary, 2.2.	Genit var her 2.4.
Northwest-ern.	Digestive derangements, 15; catarrh, 25; rheumatism, 25; dilatation of heart, 10; dermatitis (eczema, etc.), 3; cystitis, 3; paralysis, 5; cerebral degeneration, 4; hernia, 5; varicose veins, 5.	Catarrh, 25; bronchitis, 25; pneumonia, 5; erysipelas, 2; nephritis, 3; cystitis, 10; meningitis, 5; grip or influenza, 20, gonorrhea, 3; syphilis, 2.	Gang 22; pen tur tior 10; rie con
Marion	Rheumatism, 20.97; diarrhea, 8.55; heart disease, 14.09; bronchitis, 7.55; tuberculosis, 4.69.	Malaria, 21.48; Myalgia, 17; pneumonia, 5.18.	Hemo ale fist
Central	Diseases of heart, 27; lungs, 10; kidneys, 19; stomach, 18; paralysis, 9; chronic rheumatism, 15; chronic catarrh, 2.	Catarrh, 37; pneumonia, 45; diseases of the alimentary tract, 18.	Ulcer 30; abs put orri rae
Southern ..	Disease of heart, 23; lungs, 21; nephritis, 19; rheumatism, 15.	Enteritis, 26; gastritis, 22; pneumonia and pleurisy, 19.	Varic stri thr cys
Western ...	Asthma, 10.32; cystitis, 3.54; diarrhea, 6.20; heart, 10.32; liver, 1.77; nephritis, 2.37; paralysis, 26.84; rheumatism, 32.44; tuberculosis, pulmonary, 6.20.	Apoplexy, 9.90; alcoholism, 46.53; erysipelas, 16.83; furunculus, 2.97; influenza, 10.90; indigestion, 5.94; pneumonia, 6.93.	Cancer 14.1 24.7 4.71 woi
Pacific.....	Hemiplegia, 7.05; bronchitis, 10.9; heart disease, 13.76; rheumatism, 9.41; locomotor ataxia, 3.53; tuberculosis, 8.64; gastritis, 9.41; general debility, 19.3; other chronic diseases, 18.	Alcoholism, 24.13; bronchitis, 12.67; pneumonia, 8.04; gastritis, 19.54; enteritis, 11.49; other acute diseases, 24.13.	Hern 19; 9; fra cor woi sur 5.

Branch.	Admitted to hospital during year.	Number of deaths.					Causes of	
		In hospital.	In convalescent quarters.	Elsewhere on reservation.	Outside of Home.	Total.	Natural.	Violence.
Eastern	552	84	0	1	20	105	84	...
Northwestern...	1,252	132	0	3	17	152	127	0
Marion	415	70	0	8	14	92	73	...
Central	2,105	252	1	20	64	337	246	0
Southern	917	193	1	15	21	230	222	1
Western	760	121	13	7	31	172	160	1
Pacific	425	84	0	1	16	101	97	0
Total	6,426	936	15	55	183	1,189	1,009	2

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TABLE 28.—Medical department—Continued. -

Branch.	Number buried at Home cemetery during year.	Cost of funeral at Home.	What paid for funeral expenses of members dying outside of Home.	Coffins.		What clothes are members buried in?
				Cost.	Where made.	
Eastern.....	70	\$23.99	.....	\$6.00	Augusta, Me.....	Dress coat, trousers, shirt, drawers, and socks.
Northwestern .	110	12.30	.....	6.75	Milwaukee, Wis.....	Blouse, trousers, shirt, and socks.
Marion	66	9.64	.....	6.60	Marion, Ind.....	Do.
Central	242	13.57	.....	5.10	Home carpenter shop.	Full suit of underclothes and shroud.
Southern	204	8.99	.....	1.39	At Home	Suit of underclothing and shroud when buried at Home. When sent home for burial, in uniform.
Western	142	12.73	.....	4.50	Leavenworth, Kan....	Shroud, blouse, trousers, and socks.
Pacific.....	86	13.40	.....	5.95	Los Angeles, Cal.....	Blouse, trousers, shirt, drawers, and socks.
Total	920	13.51	.....	5.18		

Branch.	Hospital employees.						Average patients per em- ployee.	Average cost of employ- ees per patient.	Average cost of hospital ration per man per day, including extra diet.	Cost of extra diet for year.
	Members.	Civilians.	Annual cost.							
			Members.	Civilians.	Total.	Average per employee.				
Eastern	73	12	\$8 544.11	\$5 321.52	\$13 865.63	\$163.13	3.66	\$15.50	\$0.1915	\$3 359.51
Northwestern ..	86	18	9 606.82	6 105.71	16 712.53	160.70	3	4.00	.178	3 867.08
Marion	40	17	4 619.34	5 988.65	10 607.99	184.35	6 ¹ / ₄	\$16.14	.1482	1 052.56
Central	161	27	18 205.81	11 829.46	30 035.27	159.76	4 ¹ / ₂	6.10	.1758	7 138.13
Southern	74	24	10 476.00	9 600.00	20 076.00	204.79	8	14.56	.1969	916.43
Western	80	15	10 075.80	8 144.00	18 219.80	191.78	39.68	48.32	.1681+	876.00
Pacific.....	63	10	7 829.68	4 913.73	12 743.41	174.57	36.23	4.048	.1775	618.25
Total ...	577	123	69 357.56	51 903.07	122 254.63	174.65	.....	.....	.....	17 828.86

Branch.	Bathing facilities.	Patients to each bath tub.	Rules governing bathing.
Eastern.....	Set bath tubs, with hot and cold water, for each ward.	23	Required to bathe once a week, unless otherwise ordered by surgeon; some are bathed daily.
Northwestern .	Hot-air sweat bath, electric bath, shower bath, 3 tubs for surgeons and extra-duty men; 1 porcelain-lined bath tub for each ward; 2 for convalescent company, and 2 extra.	35	One bath weekly; extra or special prescribed by surgeons; every member required to bathe weekly, record kept by company commanders.
Marion	4 bath tubs, one for each of the upper and lower wards.	42	Bathed as soon as admitted, and weekly thereafter unless exempted by the surgeon. Patients confined to their beds receive sponge bath weekly.
Central	Bath tubs in each ward	28 to 40	Members required to bathe once a week; in hospital; orders given by ward surgeon.
Southern	16 bath tubs in the different wards ...	27	As ordered by surgeons; men generally bathe weekly.
Western	11 porcelain-lined bath tubs, with hot and cold water connections.	24.75	Patients required to bathe on admission and weekly thereafter, or oftener if necessary.
Pacific.....	4 bath tubs for wards, 1 in the south attic and 1 in the administration building.	44.75	Each patient weekly and oftener if required.

a Per month.

b Per day.

TABLE 28.—Medical department—Co

Branch.	Ventilation.	Basements.
Eastern.....	Foul air exhausted by steam fan; fresh air admitted through stacks, after being heated by passing over steam radiators.	Morgue, steam boiler, tilating fan, labc and storage.
Northwestern .	Shaft and chimney for wards with floor and ceiling openings, windows with board to direct air upward.	Converted dining vegetable and room, laboratory ar rooms, baggage, linen, special bath
Marion	Perflation and extraction...	Beneath kitchen and room used as a sc beneath hospital soiled clothing is and heaters are pl
Central	Open grates, with natural gas fires; hot and cold air flues with registers.	Storage and baggage with limited nun sleeping quarters ployees.
Southern	Open doors and windows in summer; in winter air from outside carried over heated steam coils, and admitted between beds.	As wards for ps storerooms, and ro attendants.
Western.....	Double system; direct and indirect.	Storage, sick-call barber shop, bat water-closet, and q for extra-duty mex
Pacific.....	Gratings in floors opening into conduits leading into brick ventilating shafts.	Sick-call room, b room, storage of q master's stores.

Branch.	Medicines, etc.				
	Number in use.	Number bought during year.	Number prepared in dispensary.	Cost of, for year.	What tes
Eastern.....	352	291	61	\$6,275.11	Acidum fluid., sulphs thereo nux vo its alk; phenae menti,
Northwestern .	361	128	1,206	3,173.23	Whisky hydro; laxati; sol. ca
Marion	193	144	19	5,451.73	Alcohol sulphs pills, f and et
Central	375	375	85	12,013.43	Alcohol, cetin, magne pound
Southern	292	170	122	6,265.94	Bromide sulphs trate, um, su nine st
Western.....	435	231	147	4,400.39	Acetanil cara t canad. pulv. g icylas,
Pacific.....	102	81	21	3,225.07	Antipyr. mide, J stryoh
Total	102 to 435	81 to 375	19 to 1,206	40,804.90	

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TABLE 28.—Medical department—Continued.

Branch.	Sanitary and hygienic reports submitted by surgeon to higher authorities.			What is required to improve the sanitary condition of the Home?
	Affecting hospital.	Affecting sick.	Affecting rest of command.	
Eastern.....	Yes.....	Yes.....	Yes.....	The erection of a larger tent or light frame barrack for use during summer months, to be occupied in rotation by the various companies while permanent quarters are cleaned and renovated. Present crowded condition prevents.
Northwestern	Quarterly and annual reports to Board of Managers, N. H. D. V. S.	Same.....	Same.....	Ventilation improvements now being made; more barrack room; suitable rooms for demented and insane.
Marion ^a				A better system of drainage.
Central.....	Daily verbal reports to governor.	Special report to assistant inspector-general N. H. D. V. S.	Daily verbal reports to governor.	Modern barracks.
Southern ^b				More quarters, to relieve overcrowding; better ventilation for dormitories in winter.
Western.....	Weekly, monthly, yearly, and as occasion required.	Weekly, monthly, yearly, and as occasion required.	Monthly, and as occasion required.	Renewal and improvement of water-closets, and completion of same; drains.
Pacific.....	Weekly reports.	Annual report....	Monthly report...	Increased hospital room and increased barrack room.

Branch.	Insane members.					
	Number showing indications of disordered mind during year.	Number considered permanently insane.	Principal classes of illusions.	Number sent to insane asylum during year.	Average annual insane at Home.	Average sent annually to asylum.
Eastern.....	116	48	Hallucinations of persecutions; illusions of vision and hearing; those incidental to melancholia and to exaltation.	14	45	13
Northwestern	72	10	Persecution, grandeur, and withdrawal of pensions.	0	15	0
Marion.....	23	3	Those pertaining to time and place.....	3	5½	5½
Central.....	204	59	Senile, paralytic, epileptic, and alcoholic dementia, acute and chronic mania.	33	60	33
Southern.....	155	23	Chiefly of melancholic and hypochondriac character. Delusions of persecution and annoyance.	7	(c)	10
Western.....	50	41	Persecution and conspiracy, fear, grandeur, etc.	17	38.25	16
Pacific.....	25	5	Dementia, hypochondriasis, mania.....	5	10.62	3.75
Total...	645	189		79		7

^a A monthly inspection of the buildings, quarters, and grounds is made by the surgeon regarding their sanitary and hygienic condition, and submitted regularly to governor; also a yearly report of [Indorsement of the Chief of Engineers on letter of Hon. E. S. Minor, member of Congress, to the Secretary of War, asking for information concerning H. R. 5093.] same is submitted to the Board of Managers.

^b The surgeon makes personal reports daily (with few exceptions) to the governor of the Home on the sanitary condition of the hospital, the sick, the quarters, and the command generally, and written reports as occasion requires. A report of inspection of hospital is made monthly by the governor to the president of the Board of Managers.

^c No continuous statistics from which accurate report could be made.

TABLE 28.—*Medical department*—Continued.

Branch.	Insane members.		
	Care of the demented.	Number sleeping under the level of the ground.	Where quartered or confined.
Eastern	In special wards in the hospital.....	0	In the hospital.
Northwestern	In restraint wards, and Ward G, 31 beds, entirely for paralytic demented.	3	Basement of hospital.
Marion	Vicious, in cells in guardhouse; rest by nurses in hospital.	0	In hospital, and vicious in cells in guardhouse.
Central	By special attendants	0	In frame wards in rear of hospital.
Southern	By hospital attendants, as other patients, only in larger proportion.	8	In basement. Some in wards in main hospital building; some in wards in annexes.
Western	Same as patients in hospital	0	Home insane asylum.
Pacific	Constant supervision, and isolation if necessary.	0	Hospital wards and attics.
Total		11	

Branch.	Insane members.		
	What recreation afforded ?	Number in close confinement.	Number in padded cells.
Eastern	Illustrated papers and newspapers; those who are able are given carriage rides during pleasant weather.	14	0
Northwestern	Freedom of grounds, music, games drives.	a50	0
Marion	Those requiring surveillance are taken daily into the grove by the guard.	1	1
Central	Open air exercise with attendants.	3-10	0
Southern	Reading, games indoors and outside, football and baseball, music by band. Theater in winter. Free use of grounds.	4	0
Western	Exercise about Home grounds in charge of attendants, playing cards and reading books, magazines, and newspapers.	0	0
Pacific	Nothing special	0	0
Total			1

a Average.

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TABLE 28.—Medical department—Continued.

Insane members.				
Branch.	How many and what classes are permitted to mingle with other members?	Facilities ample to properly care for them?	How can they be improved?	Number now at Home.
Eastern.....	Average 18 to 20 incipient paresis, alcoholic dementia, and senile dementia, in order named.	(a)	By providing airing court or inclosed veranda for out-of-door exercise.	16
North western.	All at times except too feeble or untidy, and those with very little mind left.	No.....	There should be a ward with isolation rooms so situated that no noise or loud talking would be heard by other patients.	72
Marion.....	All that are harmless and require no special attention.	No.....	Construction of padded cells for temporary care of the vicious.	20
Central.....	Harmless dementas, varying in number and degree of harmlessness.	No.....	By new and suitable buildings..	28
Southern.....	All except those in confinement mingle freely with other members.	No.....	By suitable buildings and separate grounds.	618
Western.....	None.....	Yes.....	Nothing to suggest.....	3
Pacific.....	All requiring close confinement or restraint are at once committed to an asylum.	No.....	By proper and adequate facilities for the care of the violently insane.	30
Total.....				187

Blind members.										Alcoholism.	
Branch.	Number totally blind.	Number with impaired eyesight unable to read.	Number requiring attendance.	Number read to.	How often?	Number of readers to blind.	What other assistance needed?	Per cent of total blind to average annual present.	Number now under treatment.	Average cost per man for treatment.	
Eastern.....	9	41	8	16	Daily.....	1	None.....	0.0044			
Northwestern	25	21	6	25	do.....	2	Assistance to get about buildings.	1.57	9	\$5.00	
Marion.....	9	19	28	10	Twice daily...	1	Keeping clothing clean and in special preparation of their food.	.005	3	15.00	
Central.....	54	75	75	54	do.....	2	Such as is ordinarily furnished by nurse.	.0091	0	.....
Southern.....	16	55	71	40	do.....	1	In dressing, eating, and to be led about outside.	.0047	5	(c)	
Western.....	18	56	18	18	Daily.....	1	Nothing to suggest...	.007	0	.....
Pacific.....	10	11	7	11	do.....	1	No other special assistance. They are assisted as necessary by the nurses in the wards in which they are located.	.0062	3	5.00	
Total...	141	278	213	174	.....	9	.....	.0076	20	5.00

a Occasionally crowded.

b Permanently insane.

c No special treatment for alcoholism used in the Home.

TABLE 29.—Statement of money accountability of Branch funds.

Date.	Appropriation account.	Pension fund.	Post fund.	Impr mei fun
<i>Receipts, including balance on hand last inspection.</i>				
1897.				
July 31	Eastern Branch	\$305,906.42	\$80,275.46	.....
Sept. 25	Central Branch	664,856.60	155,691.15	.....
Sept. 17	Marion Branch	252,070.48	32,036.84	.....
July 31	Northwestern Branch	341,189.58	56,856.08	.....
Sept. 9	Western Branch	390,519.64	49,771.58	\$171
Aug. 27	Pacific Branch	269,357.65	42,559.66	.....
Oct. 20	Southern Branch	533,231.89	83,470.76	.....
	Total to be accounted for....	2,757,132.26	499,661.53	171
<i>Expended and transferred.</i>				
1898.				
Aug. 13	Eastern Branch	296,149.87	64,695.76	.....
Aug. 31	Central Branch	594,618.80	133,031.67	.....
Aug. 29	Marion Branch	245,256.79	29,737.74	.....
Aug. 20	Northwestern Branch	319,398.25	46,543.25	.....
Oct. 8	Western Branch	383,140.44	42,417.86	171
Oct. 17	Pacific Branch	264,179.99	37,568.18	.....
Sept. 17	Southern Branch	489,601.69	67,297.54	.....
	Total expended and transferred	2,592,345.83	421,282.00	171
	Balance on hand.	164,786.43	78,379.53	.....
Date.	Appropriation account.	Subsist- ence, 1898.	Clothing, 1898.	Househ 1898
<i>Receipts, including balance on hand last inspection.</i>				
1897.				
July 31	Eastern Branch	\$119,910.68	\$2,637.79	\$47,960
Sept. 25	Central Branch	233,191.59	6,613.58	76,071
Sept. 17	Marion Branch	78,806.93	1,844.03	14,925
July 31	Northwestern Branch	129,029.85	2,255.77	47,103
Sept. 9	Western Branch	123,834.53	1,892.65	50,230
Aug. 27	Pacific Branch	85,459.68	1,292.68	28,898
Oct. 20	Southern Branch	154,533.40	2,803.63	45,932
	Total to be accounted for....	924,766.66	19,340.12	310,641
<i>Expended and transferred.</i>				
1898.				
Aug. 13	Eastern Branch	119,510.68	2,597.79	47,696
Aug. 31	Central Branch	232,748.34	6,529.55	75,783
Aug. 29	Marion Branch	78,840.60	1,545.27	13,485
Aug. 20	Northwestern Branch	128,848.84	2,055.77	46,703
Oct. 8	Western Branch	122,696.54	1,768.65	42,951
Oct. 17	Pacific Branch	85,417.12	1,267.68	28,388
Sept. 17	Southern Branch	154,333.40	2,753.63	45,832
	Total expended and transferred	923,395.52	18,518.34	300,822
	Balance on hand.	2,371.14	821.79	9,818

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TABLE 29.—Statement of money accountability of Branch treasurers—General and special funds—Continued.

Date.	Appropriation account.	Farm, 1898.	Current expenses, 1899.	Subsist- ence, 1899.	Clothing, 1899.	House- hold, 1899.	Hospital, 1899.
	<i>Receipts, including bal- ance on hand last in- spection.</i>						
1897.							
July 31	Eastern Branch	\$9,957.74	\$1,973.04	\$8,978.44	\$100.00	\$2,000.00	\$1,900.00
Sept. 25	Central Branch	13,496.32	13,671.46	40,732.13	1,035.35	13,914.64	8,281.62
Sept. 17	Marion Branch	5,409.21	3,974.07	14,528.83	476.10	2,475.00	2,800.00
July 31	Northwestern Branch	9,105.79	2,903.85	10,377.02	212.20	2,857.50	2,150.00
Sept. 9	Western Branch	6,832.16	8,568.87	31,546.44	521.85	11,011.97	6,400.00
Aug. 27	Pacific Branch	8,926.21	6,423.05	22,542.77	380.50	8,122.55	5,155.25
Oct. 20	Southern Branch	9,829.19	5,967.97	28,700.54	602.75	6,758.86	4,067.20
	Total to be ac- counted for....	63,556.62	43,497.31	157,406.17	3,328.75	47,040.52	30,754.07
	<i>Expended and trans- ferred.</i>						
	Eastern Branch	9,832.74	1,861.55	7,197.95	51.63	524.58	1,897.54
1898.	Central Branch	13,382.42	5,335.08	18,165.79	359.58	6,679.97	3,964.03
Aug. 13	Marion Branch	5,176.76		5,651.95		452.85	
Aug. 31	Northwestern Branch	8,905.79	2,260.00	10,229.35	71.80	1,051.37	1,490.98
Aug. 29	Western Branch	6,632.16	6,759.44	29,195.64	195.84	7,927.85	6,124.02
Aug. 20	Pacific Branch	8,876.21	5,199.29	20,794.41	204.99	7,086.98	4,458.94
Oct. 8	Southern Branch	9,779.19	5,027.26	28,167.14	428.28	5,550.32	4,055.51
Oct. 17	Total expended and transferred.	62,585.27	26,442.62	119,402.23	1,312.12	29,273.92	21,991.02
Sept. 17	Balance on hand ..	971.35	17,054.69	38,003.94	2,016.63	17,766.60	8,763.05
Date.	Appropriation account.	Transpor- tation, 1899.	Repairs, 1899.	Farm, 1899.	Special appropria- tions.		Converted ward and mess hall, 1899.
					1897.	1898.	
	<i>Receipts, including bal- ance on hand last in- spection.</i>						
1897.							
July 31	Eastern Branch	\$100.00	\$1,623.00	\$1,274.00		\$19,000.00	\$500.00
Sept. 25	Central Branch	300.00	8,641.95	3,284.94		6,000.00	
Sept. 17	Marion Branch	250.00	2,825.00	2,536.78	\$81.55	18,164.00	
July 31	Northwestern Branch	125.00	1,900.00	934.38			
Sept. 9	Western Branch	1,000.00	6,857.89	2,805.47	164.45	15,600.00	
Aug. 27	Pacific Branch	750.00	7,001.59	2,268.06		12,693.14	
Oct. 20	Southern Branch	275.00	4,100.00	2,349.22	1,076.94		
	Total to be ac- counted for....	2,800.00	32,949.43	15,452.85	1,322.94	71,457.14	500.00
	<i>Expended and trans- ferred.</i>						
1898.							
Aug. 13	Eastern Branch	70.55	628.39	666.82		18,206.46	
Aug. 31	Central Branch	145.32	2,043.62	1,225.08		6,000.00	
Aug. 29	Marion Branch	9.35	46.25	384.62	60.00	14,399.71	
Aug. 20	Northwestern Branch		915.06	554.38			
Oct. 8	Western Branch	284.76	5,047.44	1,871.05	164.45	15,600.00	
Oct. 17	Pacific Branch	398.50	3,439.32	1,909.49		12,197.94	
Sept. 17	Southern Branch	71.27	2,772.92	1,332.58	1,076.94		
	Total expended and transferred.	967.75	14,893.00	7,944.62	1,301.39	66,404.11	
	Balance on hand ..	1,832.25	18,056.43	7,508.23	21.55	5,053.03	500.00

TABLE 29.—Statement of money accountability of Branch funds—Continued.

Date.	Appropriation account.	Additional chapel fund.	Chapel, 1899.	
	<i>Receipts, including balance on hand last inspection.</i>			
1897.				
July 31	Eastern Branch			
Sept. 25	Central Branch	\$6,088.32	\$500.00	
Sept. 17	Marion Branch			
July 31	Northwestern Branch			
Sept. 9	Western Branch			
Aug. 27	Pacific Branch			
Oct. 20	Southern Branch			
	Total to be accounted for.	6,088.32	500.00	
	<i>Expended and transferred.</i>			
1898.				
Aug. 13	Eastern Branch			
Aug. 31	Central Branch	6,088.32		
Aug. 29	Marion Branch			
Aug. 20	Northwestern Branch			
Oct. 8	Western Branch			
Oct. 17	Pacific Branch			
Sept. 17	Southern Branch			
	Total expended and transferred	6,088.32		
	Balance on hand		500.00	
Date.	Appropriation account.	Bakery, 1899.	Oil tanks, 1899.	M H.
	<i>Receipts, including balance on hand last inspection.</i>			
1897.				
July 31	Eastern Branch			
Sept. 25	Central Branch			
Sept. 17	Marion Branch			
July 31	Northwestern Branch			
Sept. 9	Western Branch			
Aug. 27	Pacific Branch	\$3,000.00	\$1,000.00	\$6
Oct. 20	Southern Branch			
	Total to be accounted for.	3,000.00	1,000.00	6
	<i>Expended and transferred.</i>			
1898.				
Aug. 13	Eastern Branch			
Aug. 31	Central Branch			
Aug. 29	Marion Branch			
Aug. 20	Northwestern Branch			
Oct. 8	Western Branch			6
Oct. 17	Pacific Branch			
Sept. 17	Southern Branch			
	Total expended and transferred			6
	Balance on hand	3,000.00	1,000.00	...

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS. 1233

TABLE 30.—*Statement of the money accountability of the general treasurer from the 6th day of November, 1897, to the 9th day of November, 1898.*

Appropriation account.	General fund.			State aid.			Total.
	1897.	1898.	1899.	1897.	1898.	1899.	
Balance on hand last inspection.....	\$4,276.49	\$16,690.51		\$57,115.55	\$250,000.00		\$328,082.55
Received since:							
By Treasury drafts.....	2,210.00	2,023,210.00	\$1,186,121.00	35,000.00	575,000.00	\$250,000.00	4,071,541.00
By transfer.....	15,298.80	92,474.71	84,827.25				192,100.76
From sales.....		3,317.25					3,317.25
From collections.....		127.25	27.00				154.25
Total to be accounted for.....	21,785.29	2,135,819.72	1,270,475.25	92,115.55	825,000.00	250,000.00	4,595,195.81
Expended as shown by vouchers.....		392,360.75	77,304.61	91,160.62	825,000.00	203,843.78	1,589,669.76
Transferred.....	1,003.00	1,519,631.50	729,825.00				2,250,459.50
Deposited to credit of Treasurer United States.....	19,136.05	129,574.35		954.93			149,665.33
Total expended and transferred.....	20,139.05	2,041,566.60	807,129.61	92,115.55	825,000.00	203,843.78	3,989,794.59
Balance on hand.....	1,646.24	94,253.12	463,345.64			46,156.22	605,401.22

TABLE 31.—*Statement of the money accountability of Gen. W. B. Franklin from the 6th day of November, 1897, to the 9th day of November, 1898, inclusive, as president Board of Managers, National Home for Disabled Volunteer Soldiers, in charge of special funds of National Home for Disabled Volunteer Soldiers.*

Appropriation account.	U. S. fund.	Stinson legacy.	Butler settlement.	Total.
Balance on hand last inspection	\$48,749.87	\$442.58	\$2,354.88	\$51,547.33
Received since:				
From sale of bonds	2,939.37			2,939.37
From interest.....	1,397.97			1,397.97
Total to be accounted for	33,087.21	442.58	2,354.88	55,884.67
Expended, per vouchers	910.33	275.00		1,185.33
Transferred.....	1,500.00			1,500.00
Bonds sold.....	3,300.00			3,300.00
Total expended and transferred	5,710.33	275.00		5,985.33
Balance on hand.....	47,376.88	167.58	2,354.88	49,899.34

TABLE 32.—Roster of officers of the various Branches, Volunteer Soldiers.

Branch.	Office.	Name
Eastern.....	Governor.....	S. H. Allen.....
	Treasurer.....	A. L. Smith.....
	Quartermaster and commissary of subsistence.	S. J. Gallagher.....
	Surgeon.....	W. E. Elwell.....
	Chaplain.....	J. P. Nelligan.....
Northwestern.....	Do.....	E. S. Stackpole.....
	Governor.....	Cornelius Wheeler.....
	Treasurer.....	J. E. Armitage.....
	Quartermaster and commissary of subsistence.	W. W. Rowley.....
	Surgeon.....	Almon Clarke.....
Pacific.....	Adjutant.....	Moses Harris.....
	Chaplain.....	Adrian Hayden.....
	Do.....	E. P. Wright.....
	Governor.....	A. J. Smith.....
	Treasurer.....	F. K. Upham.....
Western.....	Quartermaster and commissary of subsistence.	E. J. Rising.....
	Surgeon.....	H. E. Hassel.....
	Chaplain.....	J. H. Beck.....
	Do.....	P. Howe.....
	Governor.....	J. G. Rowland.....
Marion.....	Treasurer.....	W. B. Shockley.....
	Quartermaster and commissary of subsistence.	De W. C. Goodrich.....
	Surgeon.....	D. C. Jones.....
	Chaplain.....	Jas. M. Payne.....
	Do.....	Thos. H. Kinsey.....
Central.....	Governor.....	J. H. Chapman.....
	Treasurer.....	H. O. Helchert.....
	Surgeon.....	A. D. Kimball.....
	Chaplain.....	D. E. Myers.....
	Do.....	F. C. Welchman.....
Southern.....	Governor.....	J. B. Thomas.....
	Treasurer.....	Milton McCoy.....
	Quartermaster.....	J. C. Michie.....
	Commissary of subsistence.	J. S. Galbraith.....
	Assistant adjutant-general.	Carl Berlin.....
Danville.....	Inspector.....	J. W. Byron.....
	Surgeon.....	D. C. Huffman.....
	Chaplain.....	E. Light.....
	Do.....	Chas. S. Kempe.....
	Governor.....	P. T. Woodfin.....
Danville.....	Treasurer.....	Wm. Thompson.....
	Quartermaster and commissary of subsistence.	Chas. Candy.....
	Surgeon.....	R. S. Vickery.....
	Chaplain.....	J. H. Bradley.....
	Do.....	Thos. J. Merces.....
Danville.....	Acting governor.....	F. E. Brown.....
	Treasurer.....	W. C. Tuttle.....
	Surgeon.....	A. G. Hull.....
Danville.....	Other officers not yet appointed.	.....

a He receives no addition to his pay as inspector-general, National Soldiers.

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